

**GENERAL NOTES**

- THE SUBJECT PROPERTY IS ZONED R-A-15 PER THE 02/02/04 COMPREHENSIVE ZONING PLAN.
- THE REFORESTATION OBLIGATIONS FOR PARCEL "E-1" AND LOT 83, FORMALLY PARCELS "E" AND "F" PER RE-SUBDIVISION PLAT 15771-15773 KAISER FARM, CONSISTS OF 1.9 ACRES, OF THE 1.9 ACRES, 0.6 ACRES ARE ON-SITE REFORESTATION. THE REMAINING 1.3 ACRES OF FOREST CONSERVATION OBLIGATIONS HAVE BEEN FULFILLED BY OFFSITE PLANTINGS (RIDGE VIEW HUNT, TAX MAP 14, PARCEL 14, PRESERVATION PARCEL 9 AS PREVIOUSLY INDICATED UNDER P-97-02; THIS OFFSITE AREA HAS BEEN BONDED AND IS PART OF THE DEVELOPER'S AGREEMENT FOR F-98-12 AND SDP-98-129) **F-98-12, SDP-98-129**
- FOREST STAND DELINEATION PLAN WAS PREVIOUSLY APPROVED UNDER S-95-010 FOR SECTION ONE AND A FOREST STAND DELINEATION PLAN FOR SECTIONS 2 & 3 (INCLUDING PARCEL "E") WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED APRIL 1999 AND APPROVED UNDER SP-00-03.
- WETLAND REPORT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY 1999 AND APPROVED UNDER SP-00-03.
- NO CLEARING, GRADING OR CONSTRUCTION SHALL OCCUR WITHIN WETLANDS, WETLANDS BUFFERS, STREAMS, STREAM BUFFERS, OR FOREST CONSERVATION EASEMENTS LOCATED ON THIS SITE.
- ALL LANDSCAPING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL AND SECTION 16.124(b)(3)(ii) OF THE SUBDIVISION REGULATIONS.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT FOR SDP-02-105 IN THE AMOUNT OF \$10,950.00.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTOURS SHOWN HEREON HAVE BEEN TAKEN FROM FIELD RUN TOPOGRAPHIC SURVEYS AT 2' INTERVALS PREPARED BY TSA GROUP, INC. ON OR ABOUT JULY, 97 AS SHOWN ON APPROVED ROAD CONSTRUCTION PLANS F-01-025 AND SITE DEVELOPMENT PLANS SDP-02-022/024.
- VERTICAL CONTROL AND HORIZONTAL CONTROL BASED UPON HOWARD COUNTY NAD '83 CONTROL STATIONS No.1801 & No.2422.
- THIS PROPERTY IS WITHIN THE METROPOLITAN WATER AND SEWER DISTRICT.
- WATER AND SEWER FOR THIS PROJECT IS PUBLIC, CONTR. Nos.14-3622-D & 14-3993-D. DRAINAGE AREA IS IN THE PATAPSCO WATERSHED.
- STORMWATER MANAGEMENT QUANTITY CONTROL IS BEING PROVIDED BY AN EXTENDED DETENTION FACILITY. THIS FACILITY IS PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE FACILITY WAS PROVIDED UNDER F-01-25. STORMWATER MANAGEMENT QUANTITY CONTROL FOR SECTION 3 IS BEING PROVIDED BY TWO BIO-RETENTION FACILITIES AND A SAND FILTER AS PART OF THIS SUBMISSION. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- AN ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS FOR PHASE 3 WAS PERFORMED BY THE TRAFFIC GROUP, INC. DATED JUNE, 2002.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PROPOSED EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- EXISTING UTILITIES SHOWN WERE LOCATED BY RECORD DRAWINGS AND FIELD LOCATIONS.
- UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
- CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.
- ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- BRL INDICATES BUILDING RESTRICTION LINE.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- THE STAKING OF FOUNDATIONS PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE WITH REGULATORY BUILDING RESTRICTION LINES IS RECOMMENDED.
- PREVIOUS DEPARTMENT OF PLANNING AND ZONING REFERENCE NUMBERS INCLUDE: S-95-010, S-98-05, SP-00-03, P-99-017, P-97-02, F-96-31, F-98-12, F-00-102, F-01-025, F-01-150, F-06-154, SDP-08-129, SDP-02-022, SDP-02-024, F-02-138.
- THERE ARE NO EXISTING STRUCTURES LOCATED ON-SITE.
- THE BOUNDARY SHOWN HEREON IS TAKEN FROM PLATS 14767-14770 (F-01-25)
- OPEN SPACE REQUIREMENTS FOR THIS PROJECT WERE MET AND APPROVED UNDER F-01-025.
- THERE IS NO FLOODPLAIN ON-SITE.
- PARKING REQUIREMENTS FOR KAISER FARM ARE MET BY 243 SPACES PROVIDED UNDER APPROVED PLANS F-01-025; 184 SPACES PROVIDED UNDER SDP-02-024 AND AN ADDITIONAL 66 SPACES PROPOSED UNDER THIS SUBMISSION FOR A TOTAL OF 493 SPACES.
- WAIVER PETITION WP-00-031 FOR PARCEL "E" WAS APPROVED OCTOBER 26, 1999 TO WAIVE SECTION 16.119(f)(1) TO NOT REQUIRE A SUBDIVISION FRONTING ON AN ARTERIAL ROAD TO OBTAIN VEHICULAR ACCESS BY A LOWER CLASSIFICATION ROAD; SECTION 16.119(f)(2) TO PERMIT A PRIVATE DRIVEWAY FOR A PROPOSED ELDERLY HOUSING PROJECT TO HAVE DIRECT VEHICULAR ACCESS TO AN ARTERIAL ROAD; SECTION(c)(1) TO PERMIT THE REQUIRED MINIMUM ROAD FRONTAGE OF 60 FEET TO BE ON A NON-APPROVED PUBLIC ROAD.
- A DECLARATION OF CROSS-EASEMENT FOR ACCESS AND PARKING FOR LOTS 83 AND PARCEL "E-1" WAS RECORDED ON OCTOBER 31, 2002 AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND AT LIBER 6553 FOLIO 0272; THIS INSTRUMENT ALSO INCLUDES A MAINTENANCE OBLIGATION.

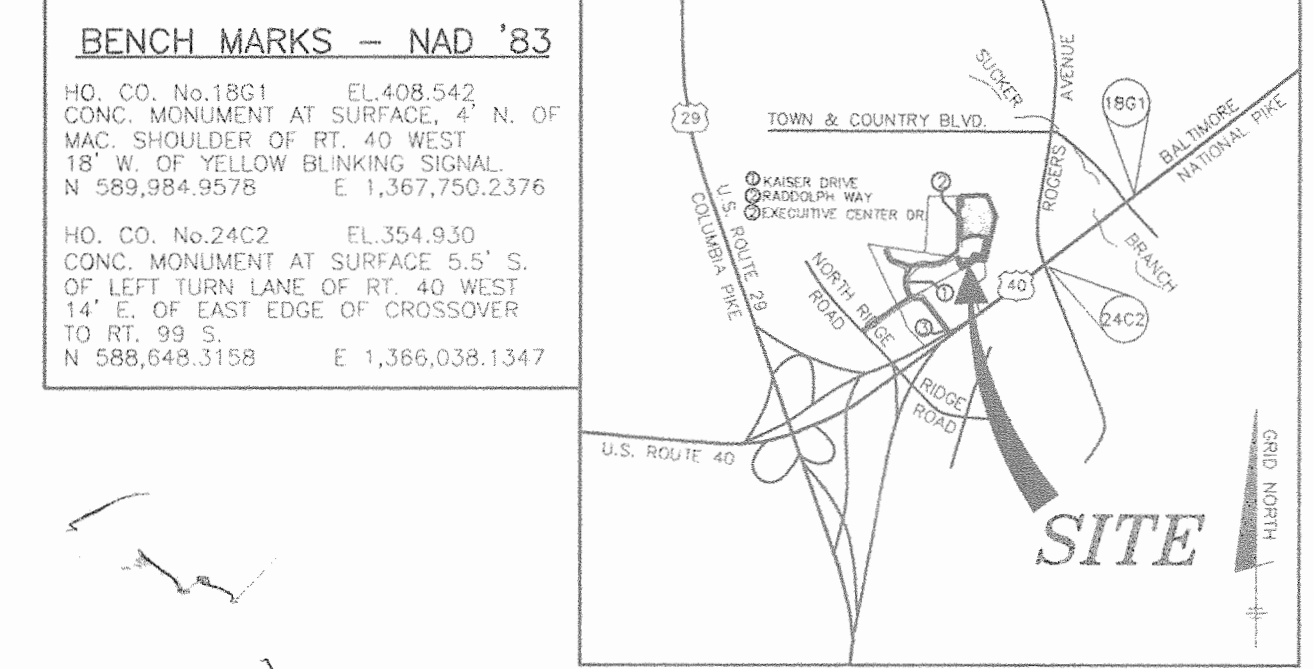
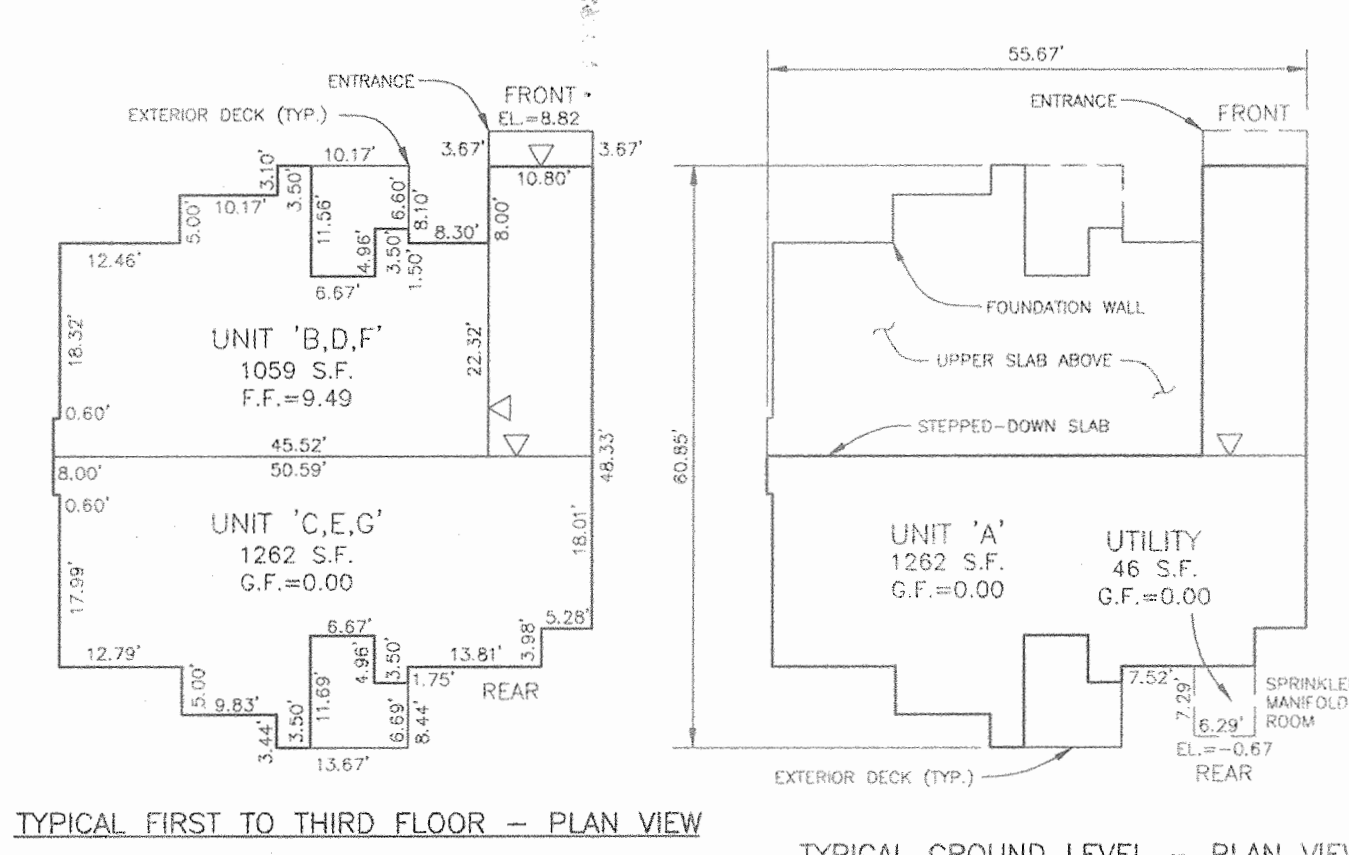
# KAISER FARM APARTMENTS

## SECTION 3 / PARCEL E-1

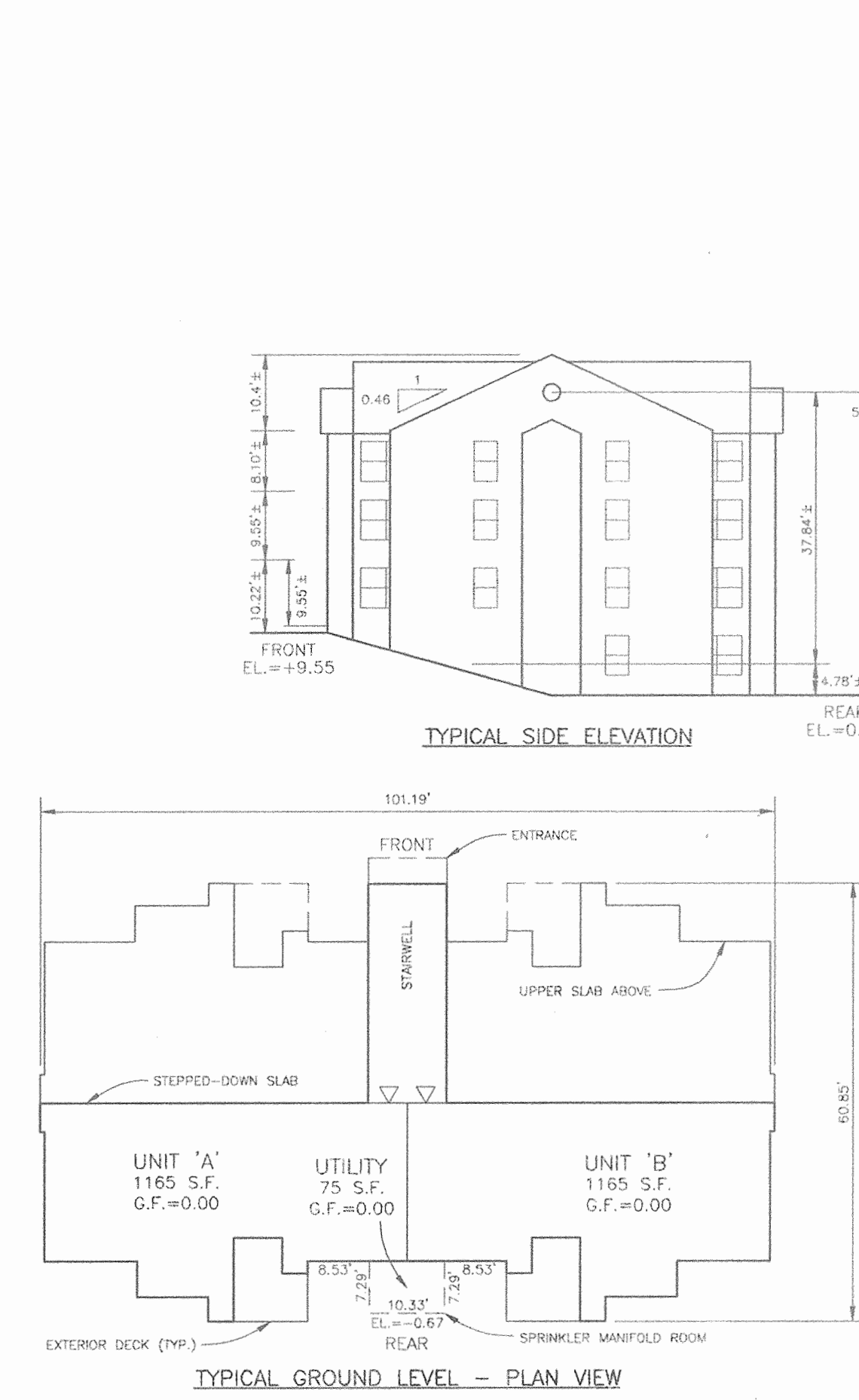
### 2nd ELECTION DISTRICT

### HOWARD COUNTY, MARYLAND

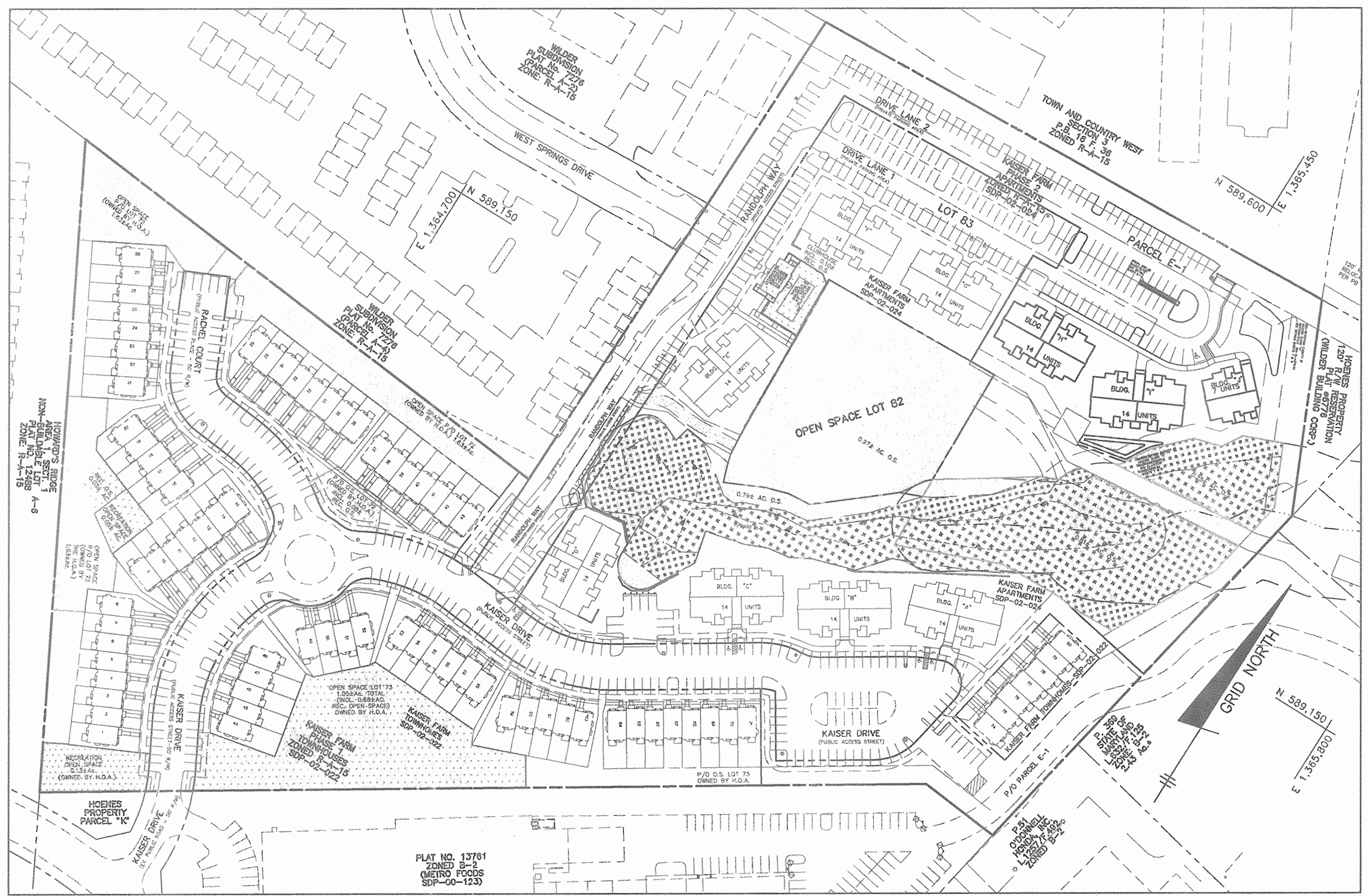
## SITE DEVELOPMENT PLAN



**BUILDING "J" FOOTPRINTS**  
SCALE: 1"=20'



**BUILDING FOOTPRINTS**  
SCALE: 1"=20'



**LOCATION PLAN -- KEY**

- CREATED OPEN SPACE
- RECREATION OPEN SPACE
- REFORESTED FCE
- RETENTION FCE

**SHEET INDEX**

NO.	DESCRIPTION
1	COVER SHEET, NOTES AND DETAILS
2	SITE DEVELOPMENT PLAN, NOTES & DETAILS
3	SEDIMENT & EROSION CONTROL PLAN
4	SEDIMENT & EROSION CONTROL NOTES AND DETAILS
5	UTILITY PROFILES, NOTES AND DETAILS
6	STORM DRAINAGE AREA PLAN AND SOILS MAP
7	STORMWATER QUALITY PLANS, NOTES AND DETAILS
8	STORMWATER QUALITY PLANS, NOTES AND DETAILS
9	LANDSCAPE PLAN, NOTES AND DETAILS

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**ENGINEERS & LAND SURVEYORS & PLANNERS**

*Donald M. ...*  
 REGISTERED PROFESSIONAL ENGINEER

**SITE ANALYSIS DATA/TABULATION**

	SECTION 3 - APARTMENT (SDP-02-105) THIS PLAN	SECTION 2 - APARTMENT (SDP-02-024)	SECTION 1 - TOWNHOMES (SDP-02-022)	TOTALS
A) TOTAL PROJECT AREA.....	4.68±AC.	4.31±AC.	8.58±AC.	17.57±AC.
B) AREA OF 100YR. FLOODPLAIN.....	N/A	N/A	N/A	N/A
C) AREA OF STEEP SLOPES.....	0.00±AC.	0.02±AC.	0.14±AC.	0.16±AC.
D) NET AREA OF SITE(S).....	3.40±AC.	5.57±AC.	8.44±AC.	17.41±AC.
E) NUMBER OF UNITS ALLOWED (DENSITY=150 U./AC.)	56	127	83	266
F) NUMBER OF RESIDENTIAL UNITS PROPOSED.....	35	98	78	211
G) AREA OF PLAN SUBMISSION.....	3.40±AC.	5.59±AC.	8.58±AC.	17.57±AC.
H) LIMIT OF DISTURBED AREA.....	1.56±AC.	4.60±AC.	3.63±AC.	9.45±AC.
I) OPEN SPACE AREA REQUIRED (25% OF 17.57±AC.)	0.85± AC.	1.39± AC.	2.15± AC.	4.39±AC.(25%)
J) CREDITED OPEN SPACE AREA PROVIDED.....	1.06± AC.	0.86±AC.	2.72±AC.	4.64±AC.(26%)
K) NON-CREDITED OPEN SPACE AREA PROVIDED.....	N/A	N/A	0.95±AC.	0.95±AC.
L) TOTAL OPEN SPACE AREA PROVIDED.....	1.06± AC.	0.86±AC.	3.67±AC.	5.59±AC.(32%)
M) RECREATION OPEN SPACE AREA REQUIRED.....	4005.F./UNIT = 0.32±AC.	1755.F./UNIT = 0.39±AC.	2005.F./UNIT = 0.36±AC.	1.07±AC.
N) RECREATION OPEN SPACE PROVIDED.....	N/A	0.10±AC.(SEE NOTE)	0.97±AC.	1.07±AC.
O) PRESENT ZONING DESIGNATION.....	R-A-15	R-A-15	R-A-15	R-A-15
P) PROPOSED USES FOR THE SITE AND STRUCTURES	RESIDENTIAL(APARTMENT)	RESIDENTIAL(APARTMENT)	RESIDENTIAL(TOWNHOUSE)	RESIDENTIAL
Q) FLOOR SPACE ON EACH LEVEL OF BUILDING.....	2112±S.F.(GROUND LEVEL) 4756±S.F.(UPPER LEVELS)	2112±S.F.(GROUND LEVEL) 4756±S.F.(UPPER LEVELS)	N/A	N/A
R) MINIMUM LOT SIZE REQUIRED.....	N/A	N/A	6615.F./80% COVERAGE 11025.F. MIN. LOT SIZE	N/A
S) NUMBER OF PARKING SPACES REQUIRED BY ZONING REGULATIONS AND/OR FDP CRITERIA				
APARTMENT (2 SPACES PER UNIT)	35 x 2/UNIT = 70	98 x 2/UNIT = 196	N/A	266
TOWNHOMES (2 SPACES PER UNIT)	N/A	N/A	78 x 2/UNIT = 156	156
OVERFLOW (0.3 SPACES PER UNIT)	35 x 0.3/UNIT = 11	98 x 0.3/UNIT = 29	78 x 0.3/UNIT = 23	63
POOL/CLUB (1.0 SPACES/SP)	N/A	N/A	N/A	8
TOTAL NUMBER OF PARKING SPACES PROVIDED ON-SITE	TOTAL REQ. = 81	TOTAL REQ. = 225	TOTAL REQ. = 187	TOTAL=493
TOTAL SPACES (BOTH TOWNHOMES & APARTMENTS) = 493 (INCLUDING 11 HANDICAPPED PARKINGS w/TWO VAN ACCESS)	66 SPACES (THIS PLAN)	184 SPACES	243 SPACES w/F-01-025	TOTAL=493

CLUBHOUSE CREDIT NOTE:  
 RECREATIONAL OPEN SPACE  
 CLUBHOUSE=8005.F./x2=16005.F.  
 FENCED-IN POOL AREA=28225.F.  
 TOTAL=44225.F./0.10AC.

**ADDRESS CHART**

BLDG.	STREET ADDRESS
H	8150 RANDOLPH WAY
I	8160 RANDOLPH WAY
J	8170 RANDOLPH WAY

**PERMIT INFORMATION CHART**

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL			
KAISER FARM	SECTION 3	P.733 / P.E-1			
PLAT No.	BLOCK No.	ZONING	TAX MAP	ELEC. DIST.	CENSUS
15771	24	R-A-15	17	2nd	6026.00
WATER CODE	SEWER CODE				
F03	1453600				

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*John ...*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/10/06 DATE

*Cindy ...*  
 CHIEF, DIVISION OF LAND DEVELOPMENT 10/12/06 DATE

*Marcus ...*  
 DIRECTOR 10/12/06 DATE

DEVELOPER: KAISER FARM, L.L.C.  
 P.O. BOX 417  
 ELLICOTT CITY, MD 21041  
 PHONE: 410-465-4244

BUILDER: RYLAND HOMES  
 7250 PARKWAY DRIVE  
 SUITE 520  
 HANOVER, MD 21076  
 PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

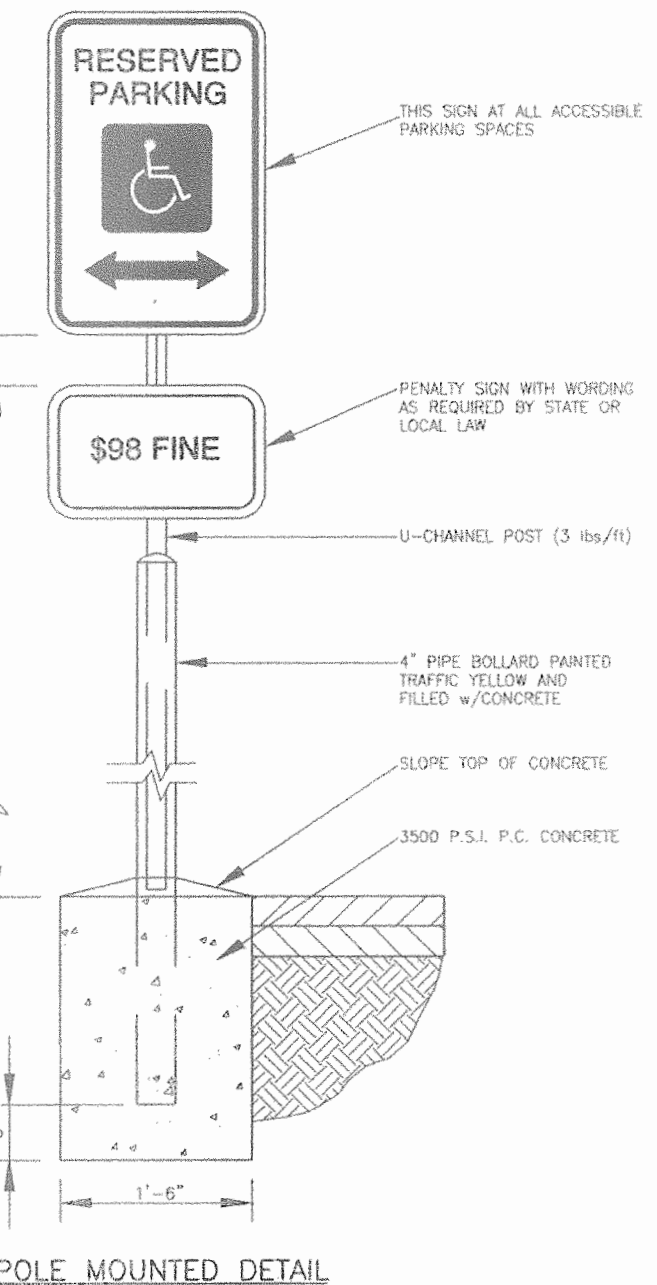
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: COVER SHEET NOTES AND DETAILS

DATE: APRIL, 2002 PROJECT NO. 1530  
 SEPTEMBER 27, 2006

SCALE: AS SHOWN DRAWING 1 OF 9

Design: DAM/MCR Draft: MCR Check: DAM



RESERVED PARKING SIGN DETAIL  
NOT TO SCALE



HANDICAP RAMP DETAIL  
SCALE: 1" = 10'

LEGEND	
SOILS CLASSIFICATION	AbC1
SOILS DELINEATION	---
EXISTING CONTOURS	---
PROPOSED CONTOURS	---
LIMIT OF WETLANDS	---
EXISTING WOODS LINE	---
PROPOSED WOODS LINE	---
EXISTING STRUCTURE	---
PROPOSED STRUCTURE	---
DRAINAGE AREA	---
DRAINAGE DIVIDE	---
Tc STUDY PATH	---
LIMIT OF DISTURBANCE	---
STABILIZED CONSTRUCTION ENTRANCE	---
SILT FENCE	---
SUPER SILT FENCE	---
SOIL STABILIZATION MATTING	---
EARTH DIKE	---
INLET PROTECTION	---

NOTE: ALL STORMWATER MANAGEMENT BMP'S SHOWN ON THESE PLANS ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Andy Hamer*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Mark A. Vogel*  
DIRECTOR

*10/10/06*  
DATE

NO.	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

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ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: bel@benchmark-engineering.com

*Donald Mason*  
PROFESSIONAL ENGINEER  
1/25/06

DEVELOPER: KAISER FARM, L.L.C.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

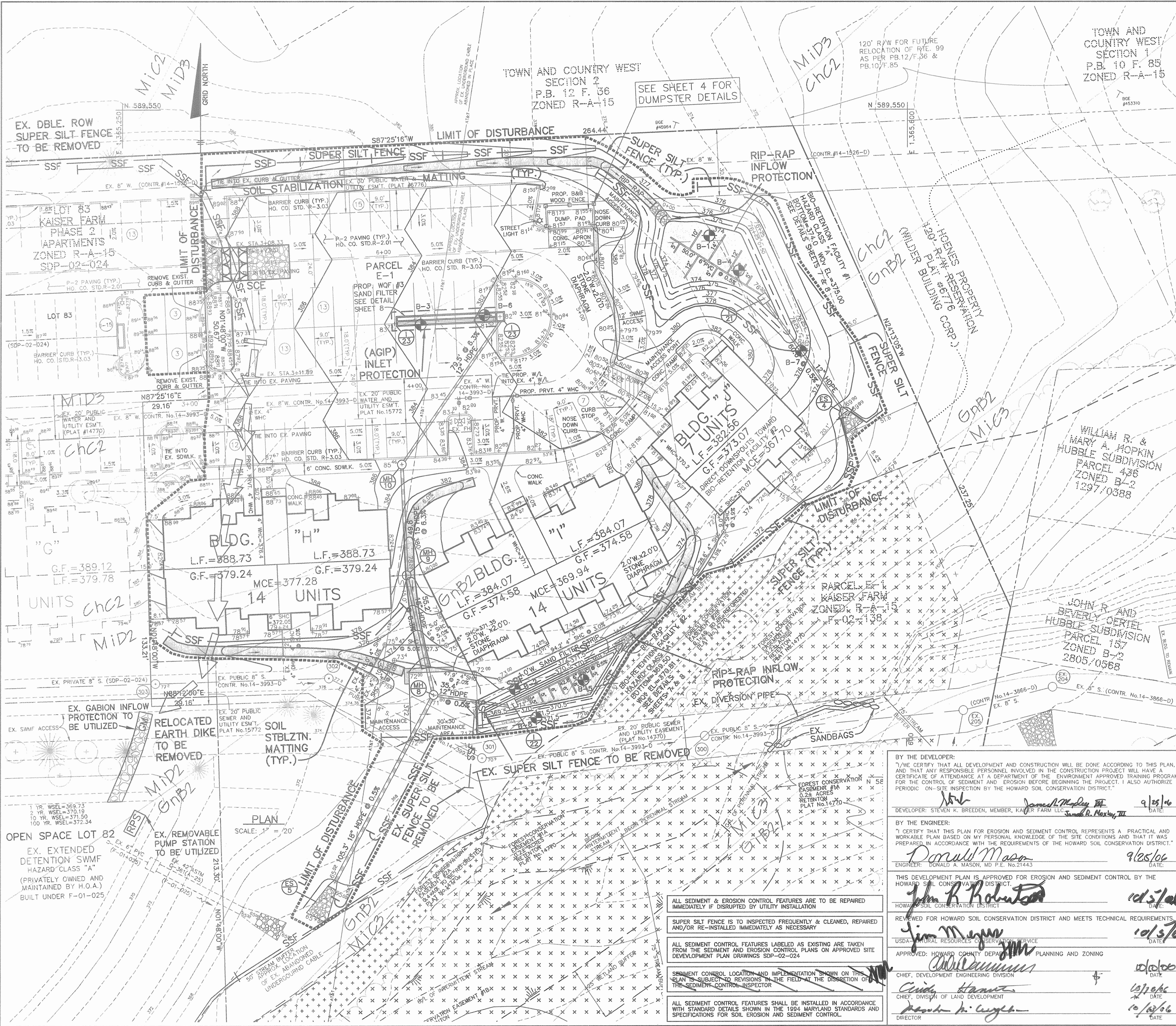
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN NOTES & DETAILS

DATE: APRIL 2002 PROJECT NO. 1530  
SEPTEMBER 27, 2006

SCALE: AS SHOWN DRAWING 2 OF 9

Design: DAM/MCR Draft: MCR Check: DAM



SOILS LEGEND		
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Chc2	B	CHESTER SILT LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
GnB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GnB2	C	GLENELG SILT LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
Mic2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
Mic2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
Mic2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
Mic3	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

SOILS MAP No. 16  
\* - INDICATES HYDRIC SOIL

LEGEND	
SOILS CLASSIFICATION	Abc1
SOILS DELINEATION	---
EXISTING CONTOURS	---999---
PROPOSED CONTOURS	---999---
LIMIT OF WETLANDS	---
EXISTING WOODS LINE	---
PROPOSED WOODS LINE	---
EXISTING STRUCTURE	---
PROPOSED STRUCTURE	---
DRAINAGE AREA	---
DRAINAGE DIVIDE	---
TO STUDY PATH	---
LIMIT OF DISTURBANCE	---
STABILIZED CONSTRUCTION ENTRANCE	---
SILT FENCE	---
SUPER SILT FENCE	---
SOIL STABILIZATION MATTING	---
EARTH DIKE	---
INLET PROTECTION	---

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: STEVEN K. BREEDEN, MEMBER, KAISER FARM LLC  
*James M. Mason III* 9/25/06  
*Donald A. Mason, III*

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER: DONALD A. MASON, MD P.E. No. 21443  
*Donald A. Mason* 9/25/06  
*John R. Robertson* 10/3/06

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT  
*John R. Robertson* 10/3/06  
 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 USDA NATURAL RESOURCES CONSERVATION SERVICE  
*Jim Mason* 10/3/06  
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*William A. Mason* 10/3/06  
 DATE  
*Cindy Hammett* 10/3/06  
 DATE  
*Robert H. Wright* 10/3/06  
 DATE

NO.	DATE	REVISION

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

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E-MAIL: ba@bei-civilengineering.com

*Donald A. Mason*  
REGISTERED PROFESSIONAL ENGINEER  
9/25/06

DEVELOPER:	KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 PHONE: 410-465-4244
PROJECT:	KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1
LOCATION:	TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	SEDIMENT AND EROSION CONTROL PLAN
DATE:	APRIL 2002 SEPTEMBER 27, 2006
PROJECT NO.	1530
SCALE:	AS SHOWN DRAWING .3 OF .9

DESIGN: DAM/MCR DRAFT: MCR CHECK: DAM

- ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION
- SUPER SILT FENCE IS TO BE INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY
- ALL SEDIMENT CONTROL FEATURES LABELED AS EXISTING ARE TAKEN FROM THE SEDIMENT AND EROSION CONTROL PLANS ON APPROVED SITE DEVELOPMENT PLAN DRAWINGS SDP-02-024
- SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THIS PLAN IS SUBJECT TO REVISIONS IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR
- ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

**SEDIMENT CONTROL NOTES**

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RESTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SO2 (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALLOW CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:**  
TOTAL AREA OF SITE: 4.68 ACRES  
TOTAL AREA DISTURBED: 1.56 ACRES  
AREA TO BE REEVED OR PAVED: 0.59 ACRES  
AREA TO BE VEGETATIVELY STABILIZED: 1.00 ACRES  
TOTAL CUT: 3000 CU. YDS.  
TOTAL FILL: 2000 CU. YDS.  
OFFSITE HULL: NON-SITE STOCKPILE
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 3 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUIRED UPON COMPLETION OF INSTALLATION OF PERMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITH ONE WORKING DAY, WHICHEVER IS SHORTER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY AN OFF-SITE FILL AREA WITH AN APPROVED SEDIMENT & EROSION CONTROL PLAN.

**TEMPORARY SEEDBED PREPARATION**

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

**SEEDBED PREPARATION:** LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

**SEEDING:** FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 1 LBS PER ACRE OF WHEAT (0.7 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SO2.

**MULCHING:** APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1984 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

**PERMANENT SEEDBED PREPARATION**

**SEEDBED PREPARATION:** LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

**SOIL AMENDMENTS:** IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0-0 UREA/FORM FERTILIZER (9 LBS/1000 SQ FT).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

**SEEDING:** FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 40 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (0.5 LBS/1000 SQ FT) OF WHEAT. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SO2. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

**MULCHING:** APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

**MAINTENANCE:** INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

**SEQUENCE OF CONSTRUCTION**

- DAY 1 OBTAIN GRADING PERMIT.
- DAY 2-3 INSPECT & REPAIR THE EX. SUPER SILT FENCE AS SHOWN ON THE PLANS AROUND THE FOREST CONSERVATION EASEMENTS AND STABILIZE ANY CONTROL DEVICES TO REMAIN PRIOR TO ANY CLEARING AND GRUBBING OF THE SITE.
- DAY 4-7 CLEAR & GRUB FOR SEDIMENT CONTROL DEVICES AND REMOVE THE EX. CONTROL DEVICES INDICATED ON THESE PLANS.
- DAY 8-10 CLEAR AND GRUB REMAINDER OF THE SITE.
- DAY 11-13 UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, BEGIN MASS GRADING OF THE SITE.
- DAY 14 STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
- DAY 15-22 INSTALL BIO-RETENTION FACILITIES, SAND FILTER, STORM DRAINS AND OTHER UTILITIES.
- DAY 23-25 INSTALL CURB AND GUTTER.
- DAY 26-28 INSTALL BASE COURSE PAVING FOR ROADS.
- DAY 29-82 CONSTRUCT APARTMENT BUILDINGS.
- DAY 83-85 FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
- DAY 86-87 INSTALL FINAL PAVING FOR ROADS.
- DAY 88-90 INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THESE PLANS.
- DAY 91-95 UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE THE SITE.

**21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

**Definition**  
Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

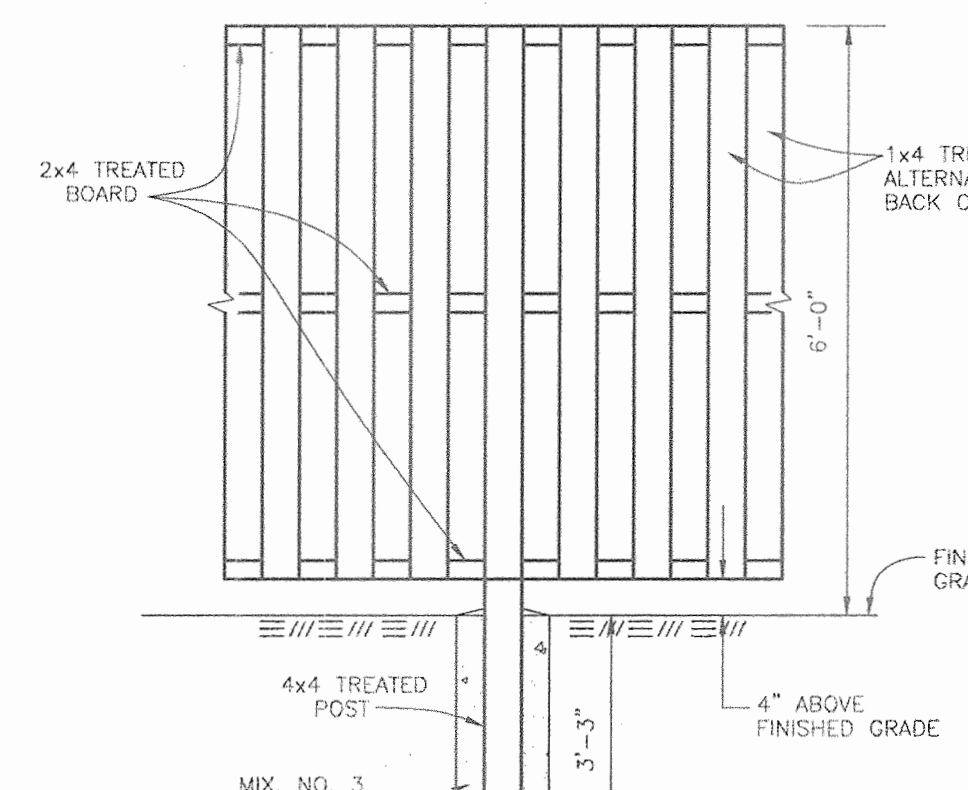
**Duration**  
To provide a suitable medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

**Conditions Where Practice Applies**

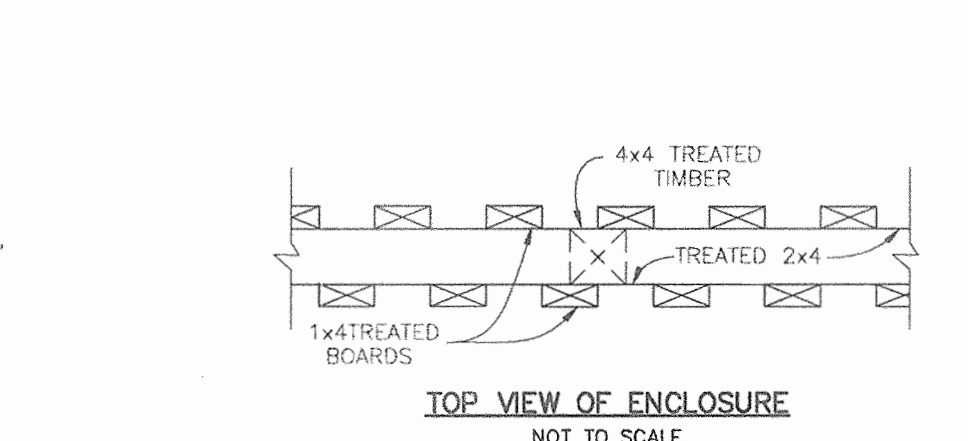
- This practice is limited to areas having 2:1 or flatter slopes where:
  - the texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  - the soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - the original soil to be vegetated contains material toxic to plant growth.
  - the soil is so acidic that treatment with limestone is not feasible. If, for the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
  - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textural subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
  - Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, stinkie, or others as specified.
  - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- For sites having disturbed areas under 5 acres:
  - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- For sites having disturbed areas over 5 acres:
  - On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required using the soil into compliance with the following:
    - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
    - Organic content of topsoil shall be not less than 1.5 percent by weight.
    - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
    - No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
  - Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

- All lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3" (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
- Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
- Entrance and exit sections shall be installed as shown on the detail section.
- Rip-Rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
- Golfon Inflow Protection may be used in lieu of Rip-Rap Inflow Protection.
- Rip-Rap should blend into existing ground.
- Rip-Rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale Lining criteria.



**SECTION A-A WOOD SCREEN FENCE FOR DUMPSTER PAD AREA**  
NOT TO SCALE

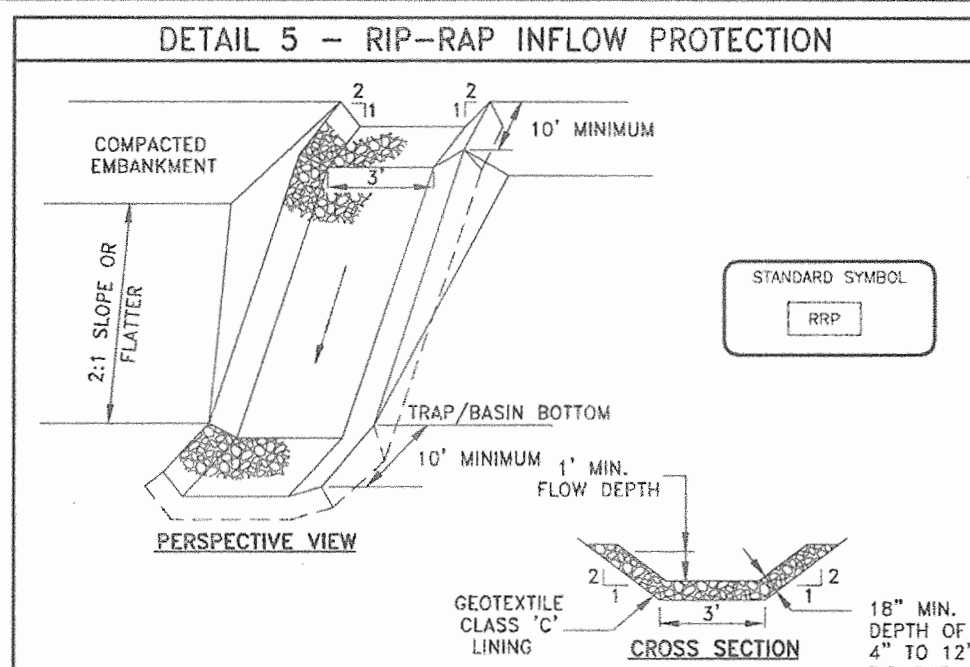


**TOP VIEW OF ENCLOSURE**  
NOT TO SCALE

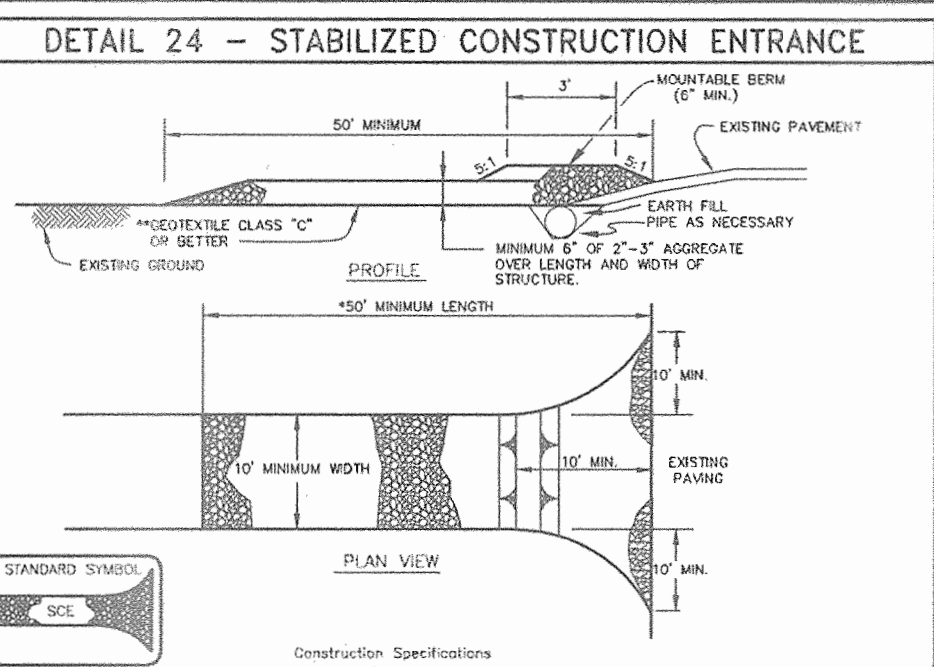
**DUMPSTER ENCLOSURE DETAILS**



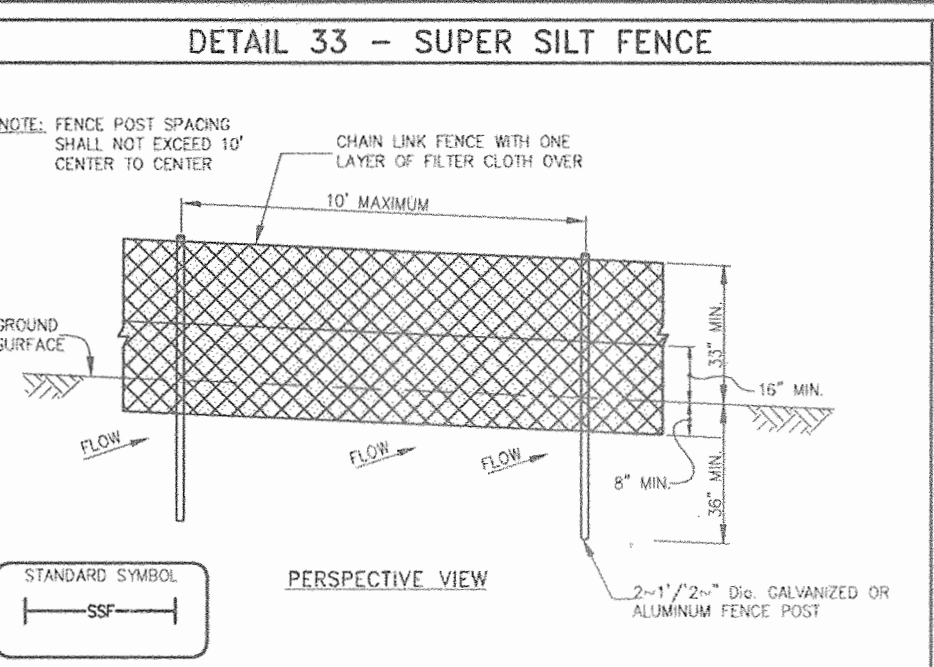
**JAMB DETAIL**  
NOT TO SCALE



**DETAIL 5 - RIP-RAP INFLOW PROTECTION**



**DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE**



**DETAIL 33 - SUPER SILT FENCE**

**CONSTRUCTION SPECIFICATIONS**

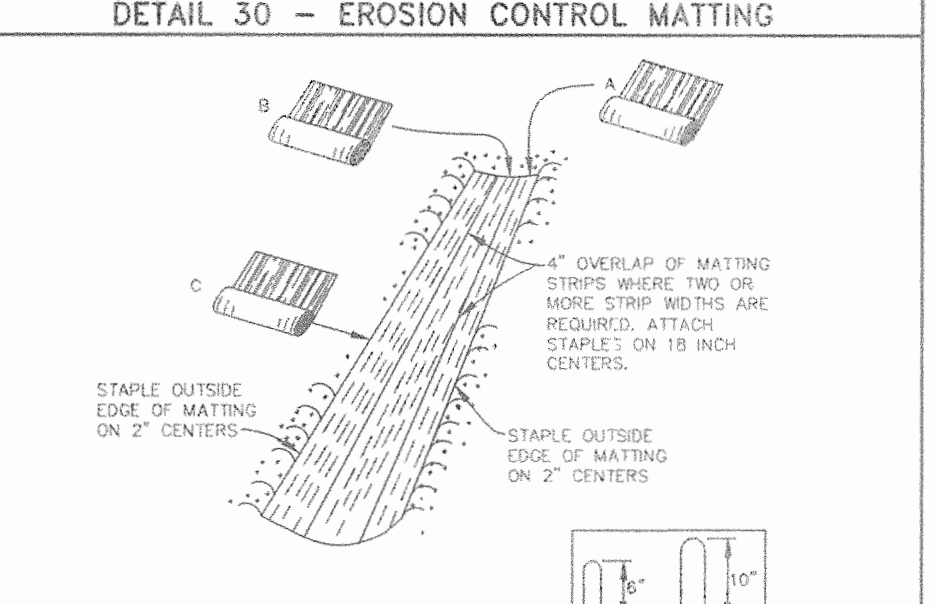
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
- Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" of the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and all ballcaps removed when "bump" develop in the silt fence, or when silt reaches 50% of fence height!

Tensile Strength	40 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft <sup>2</sup> /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

**SUPER SILT FENCE DESIGN CRITERIA**

Slope	Slope Length (maximum)	Sill Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited
10 - 20%	10:1 - 5:1	200 feet
20 - 33%	5:1 - 3:1	100 feet
33 - 50%	3:1 - 2:1	100 feet
50% +	2:1 +	50 feet

**DETAIL 30 - EROSION CONTROL MATTING**



**CONSTRUCTION SPECIFICATIONS**

- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
- STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
- BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CHANNEL.
- WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4". SIMILAR FASHION REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

**SOIL STABILIZATION MATTING**

NOT TO SCALE

BY THE DEVELOPER:  
I, JAMES R. BREEDEN, MEMBER, KAISER FARM LLC, CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZED PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY CONSERVATION DISTRICT.

DATE: 9/23/06

BY THE ENGINEER:  
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.

DATE: 9/25/06

THIS DEVELOPMENT PLAN IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

DATE: 10/3/06

REVIEWED FOR HOWARD COUNTY CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

DATE: 10/3/06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 10/10/06

DATE: 10/12/06

DATE: 10/20/06

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: bel@ben-civilengineering.com

DEVELOPER: KAISER FARM, L.L.C.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

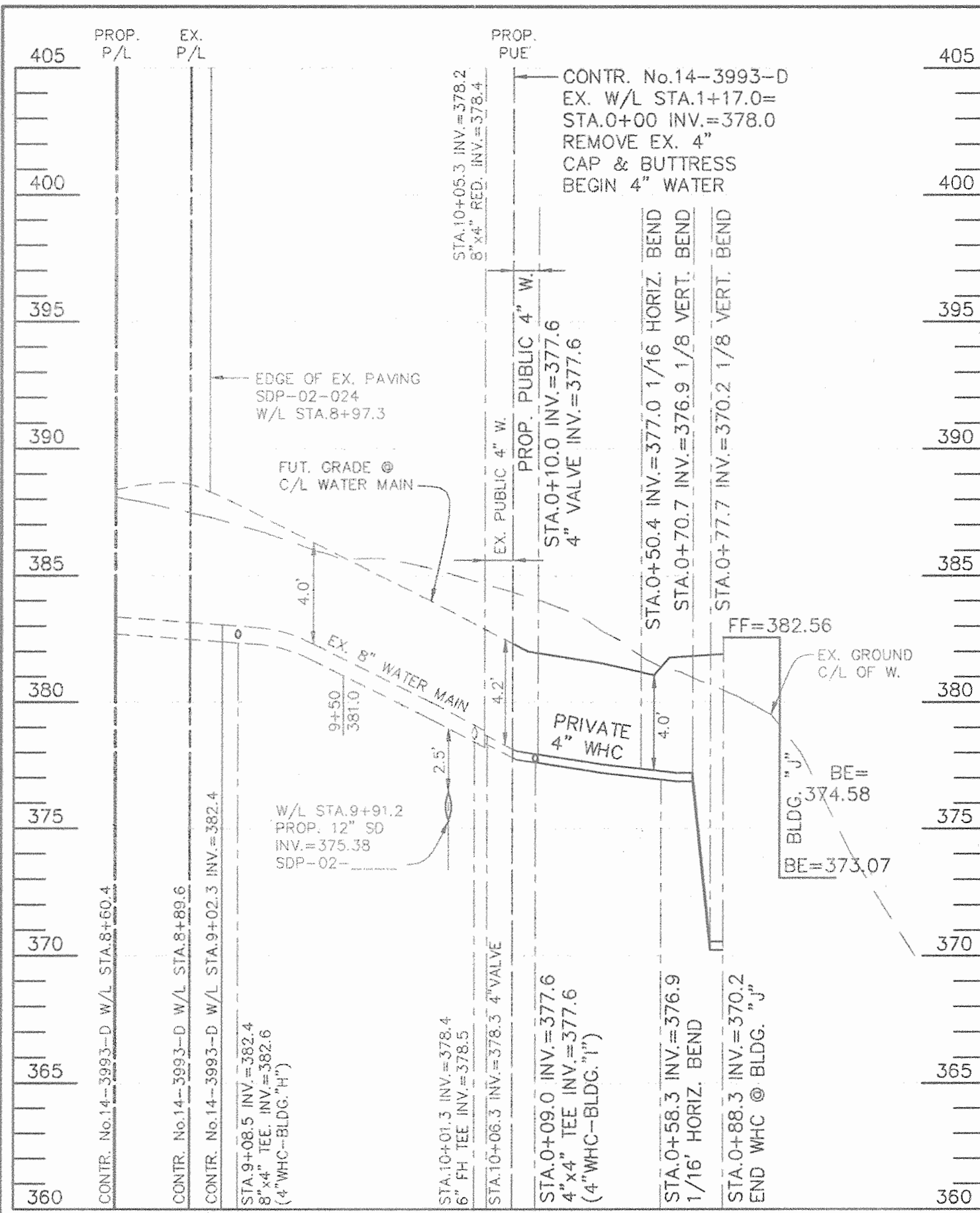
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT & EROSION CONTROL NOTES AND DETAILS

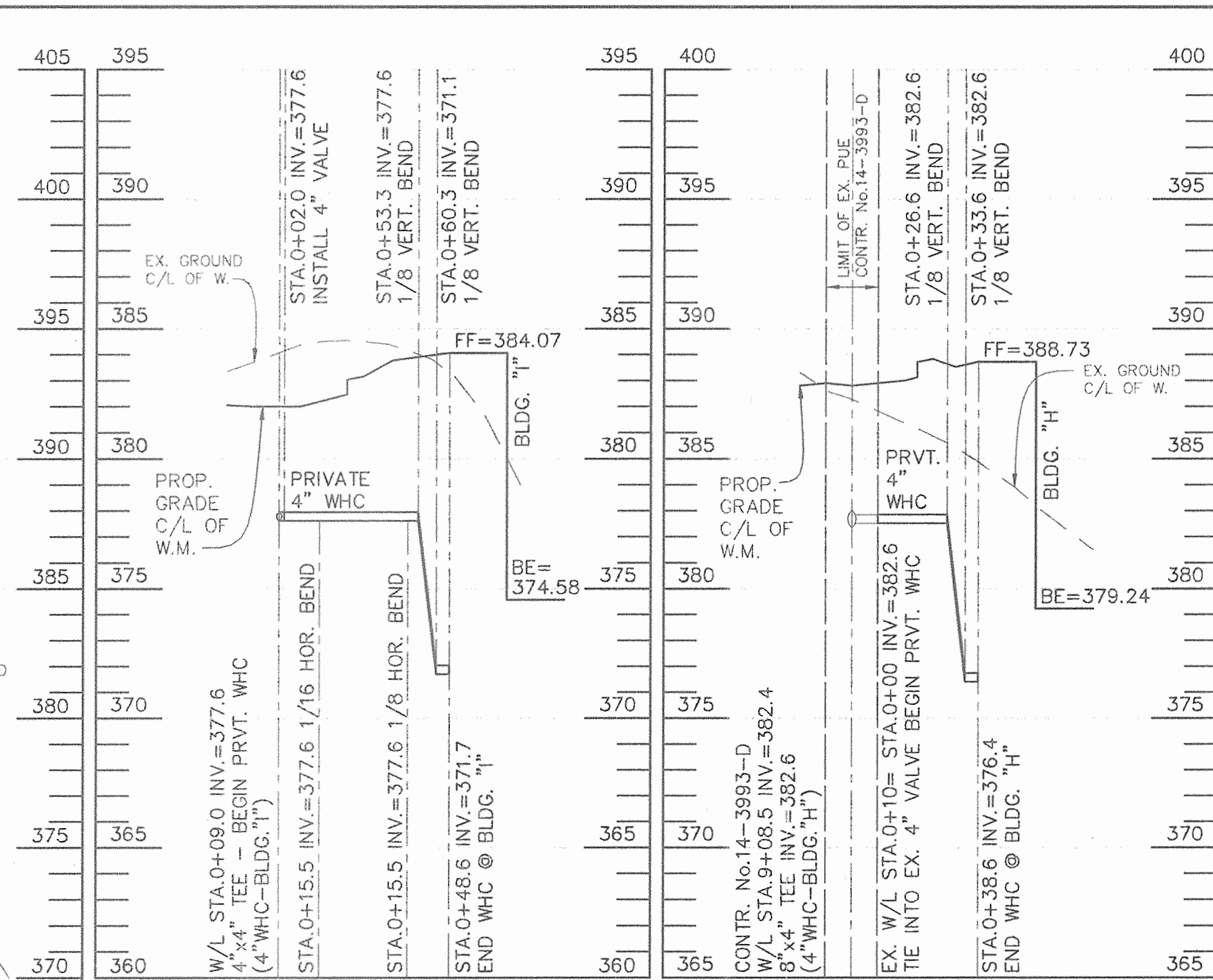
DATE: APRIL, 2002 PROJECT NO. 1530  
SEPTEMBER 27, 2006

SCALE: AS SHOWN DRAWING 4 OF 9

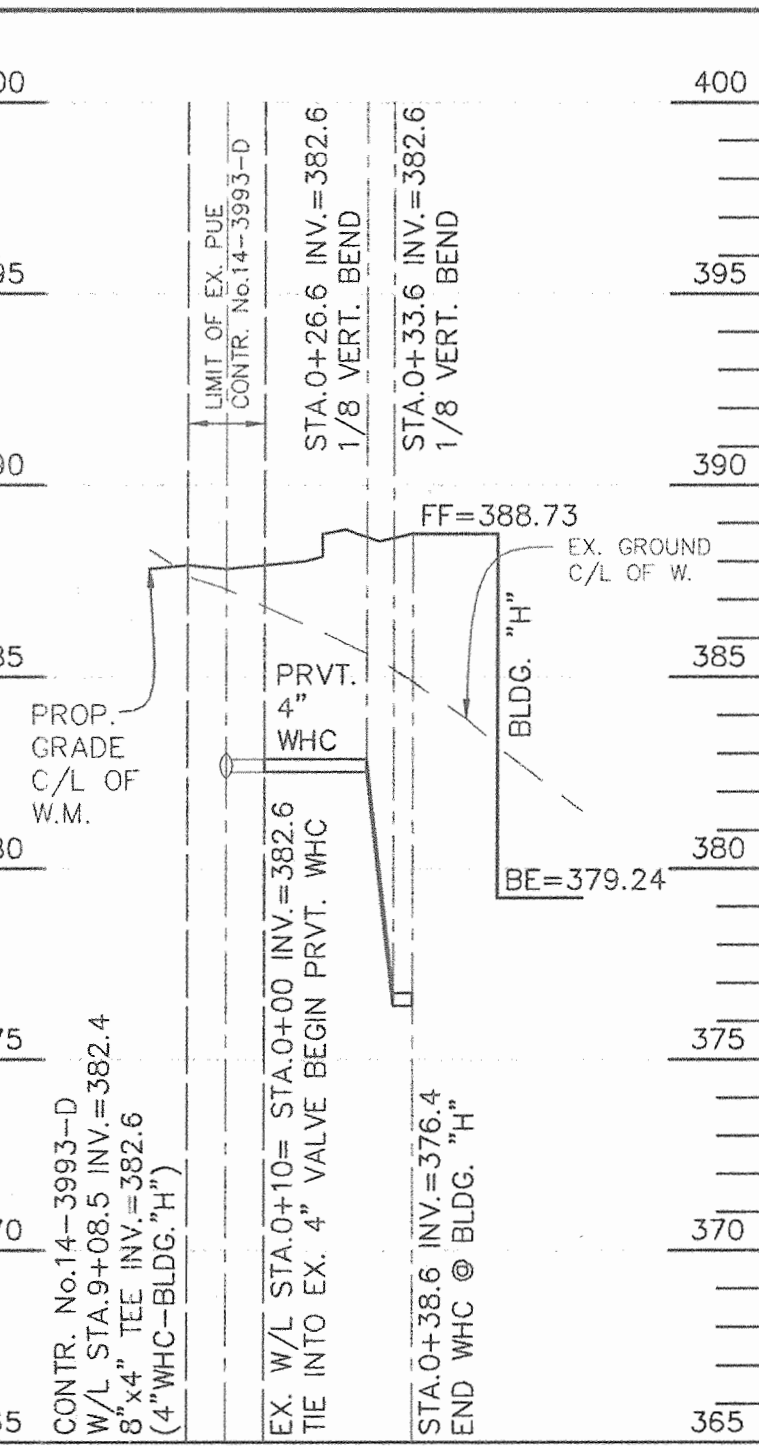
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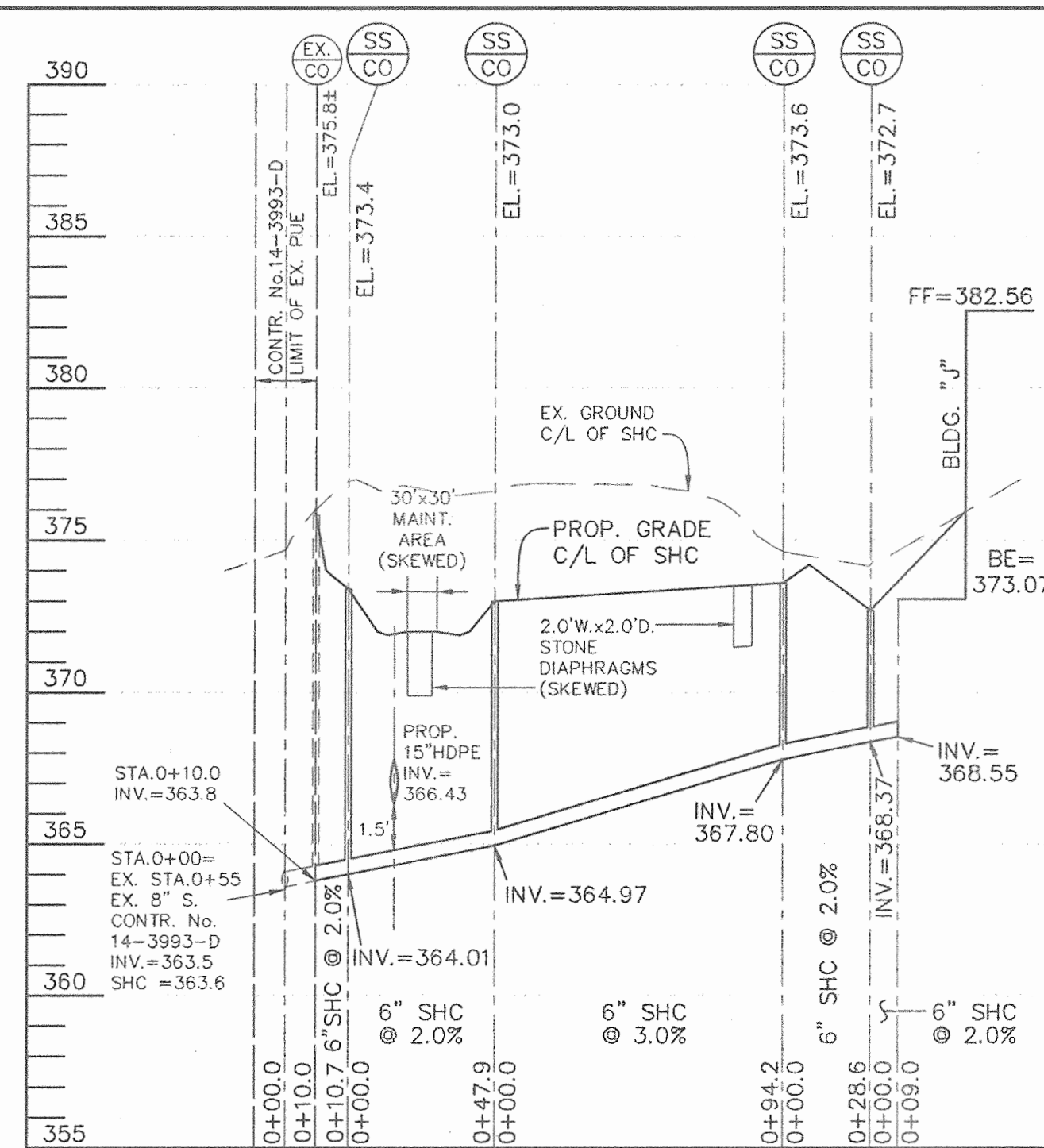
**WHC PROFILE - BLDG. "J"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



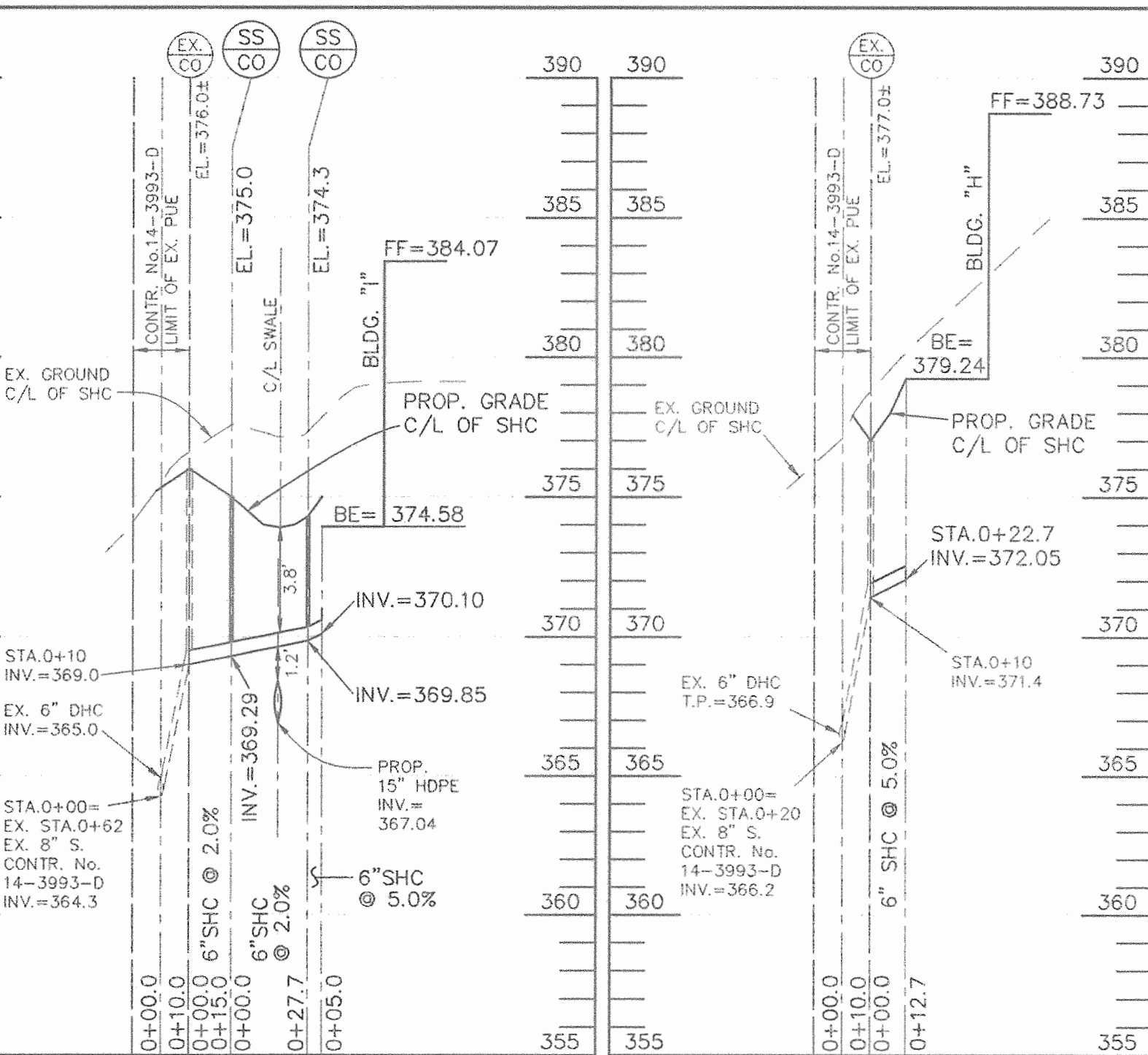
**WHC PROFILE - BLDG. "I"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



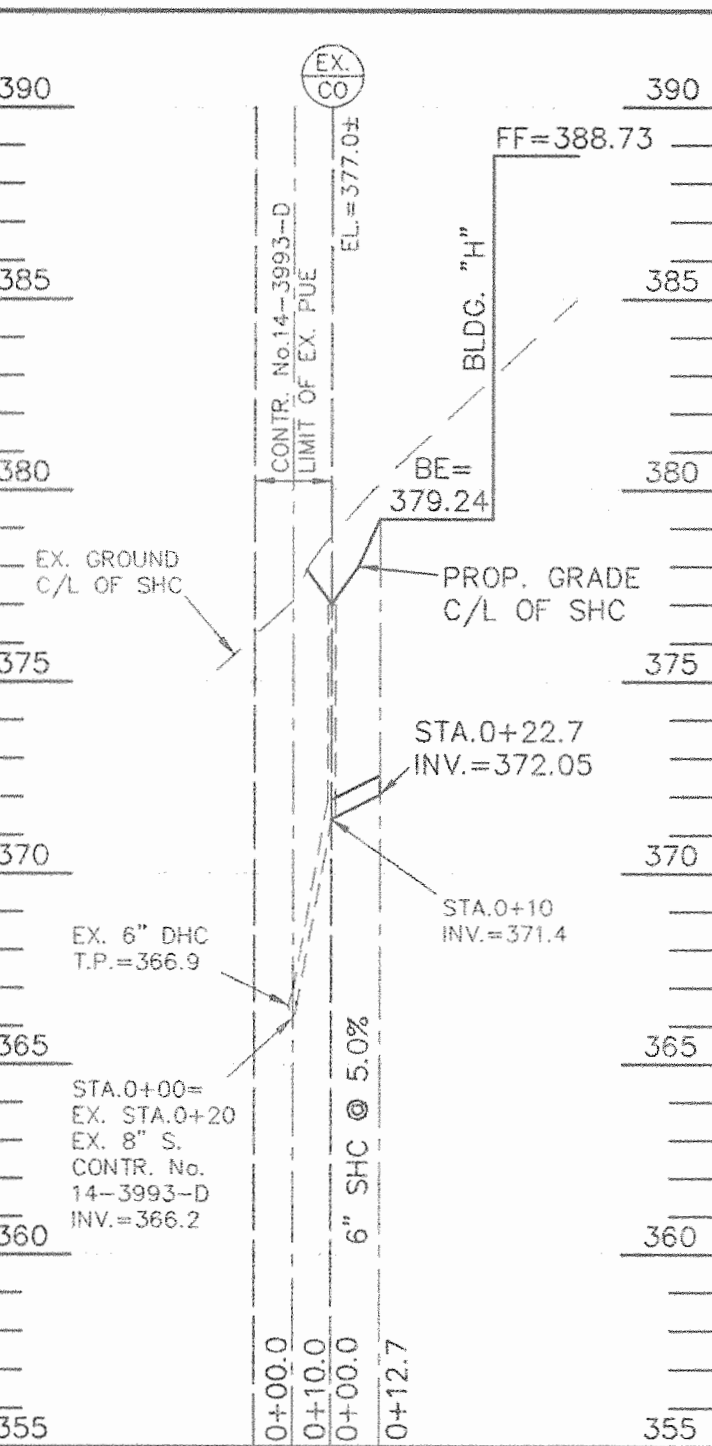
**WHC PROFILE - BLDG. "H"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



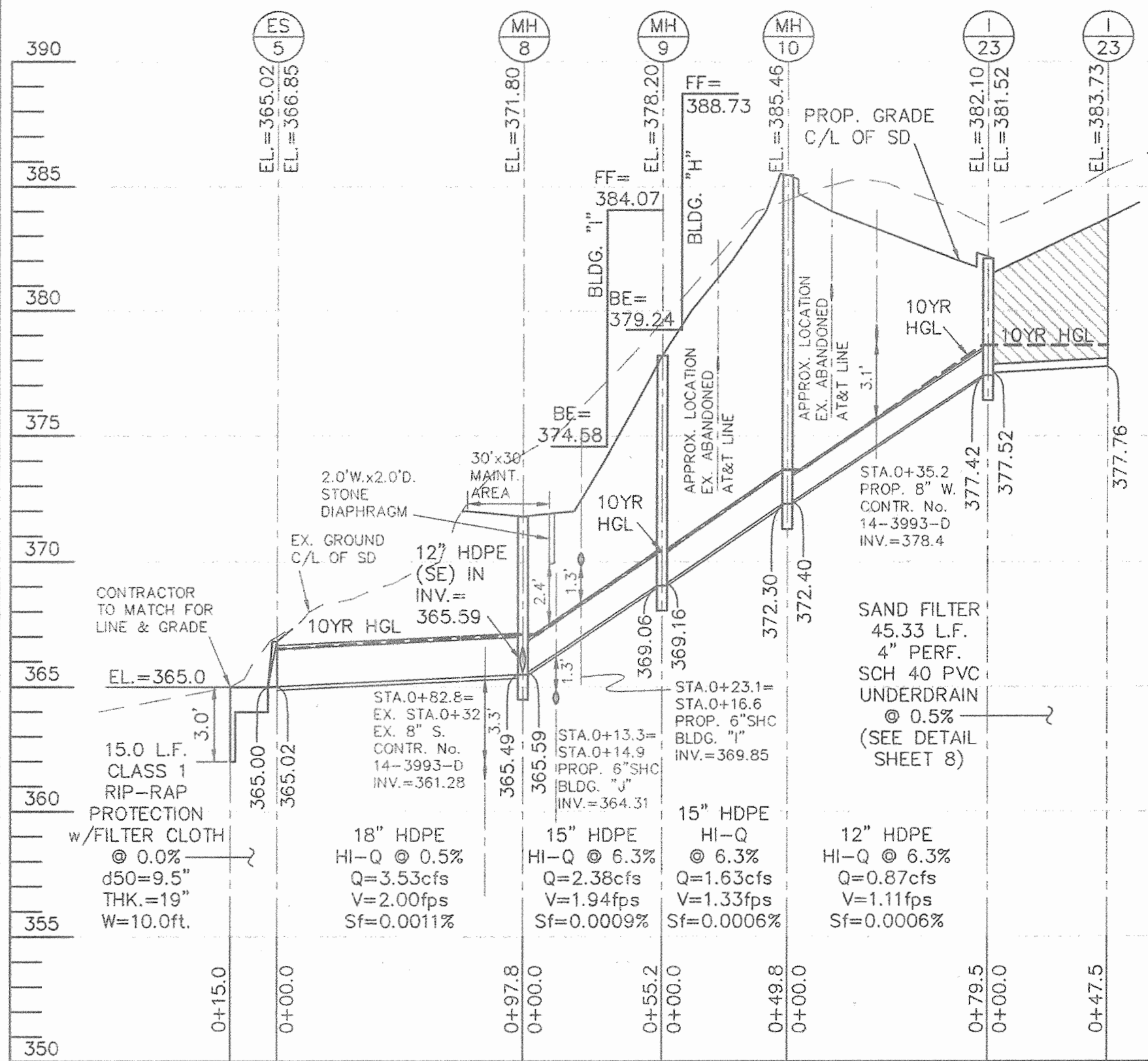
**SHC PROFILE - BLDG. "J"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



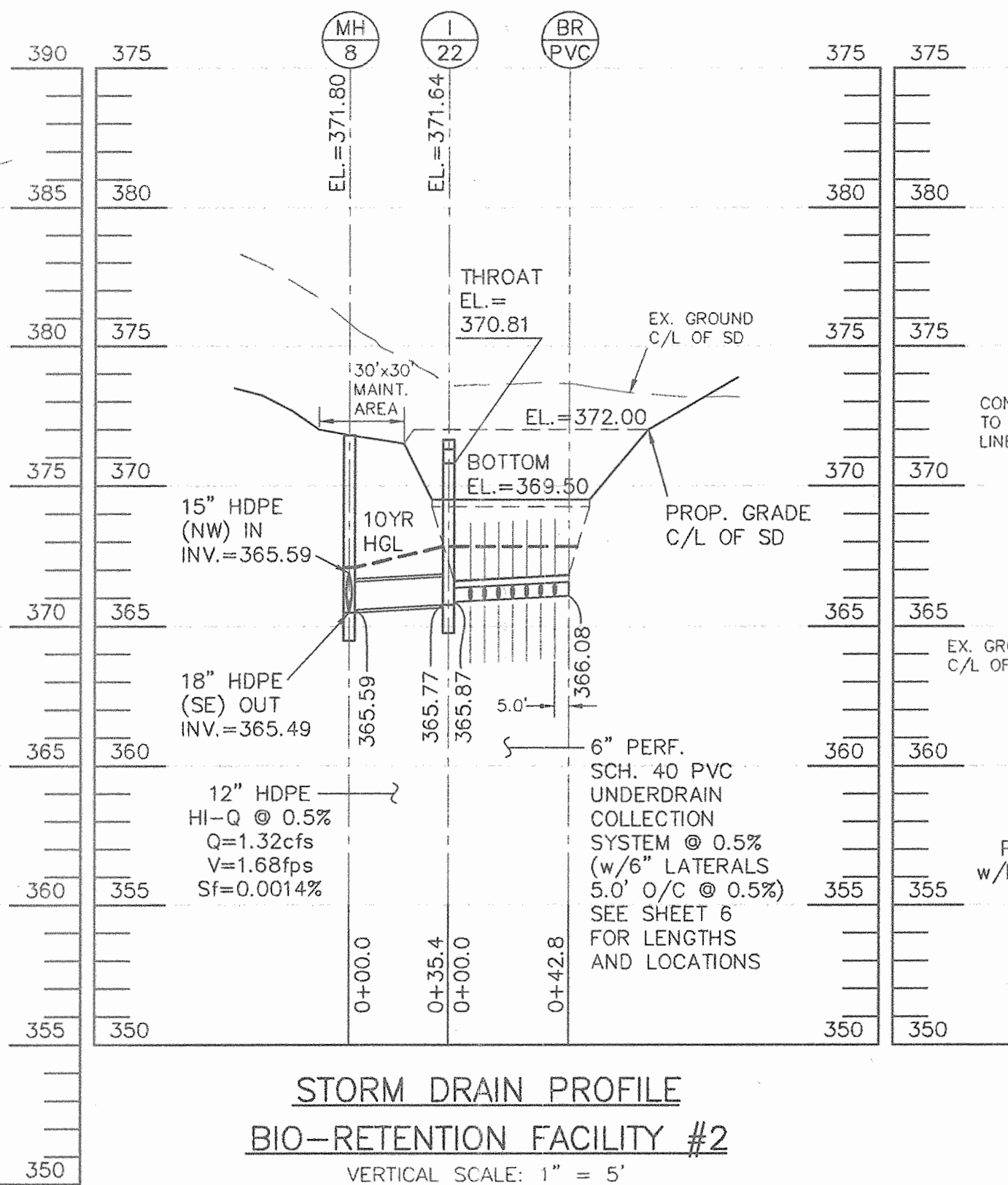
**SHC PROFILE - BLDG. "I"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



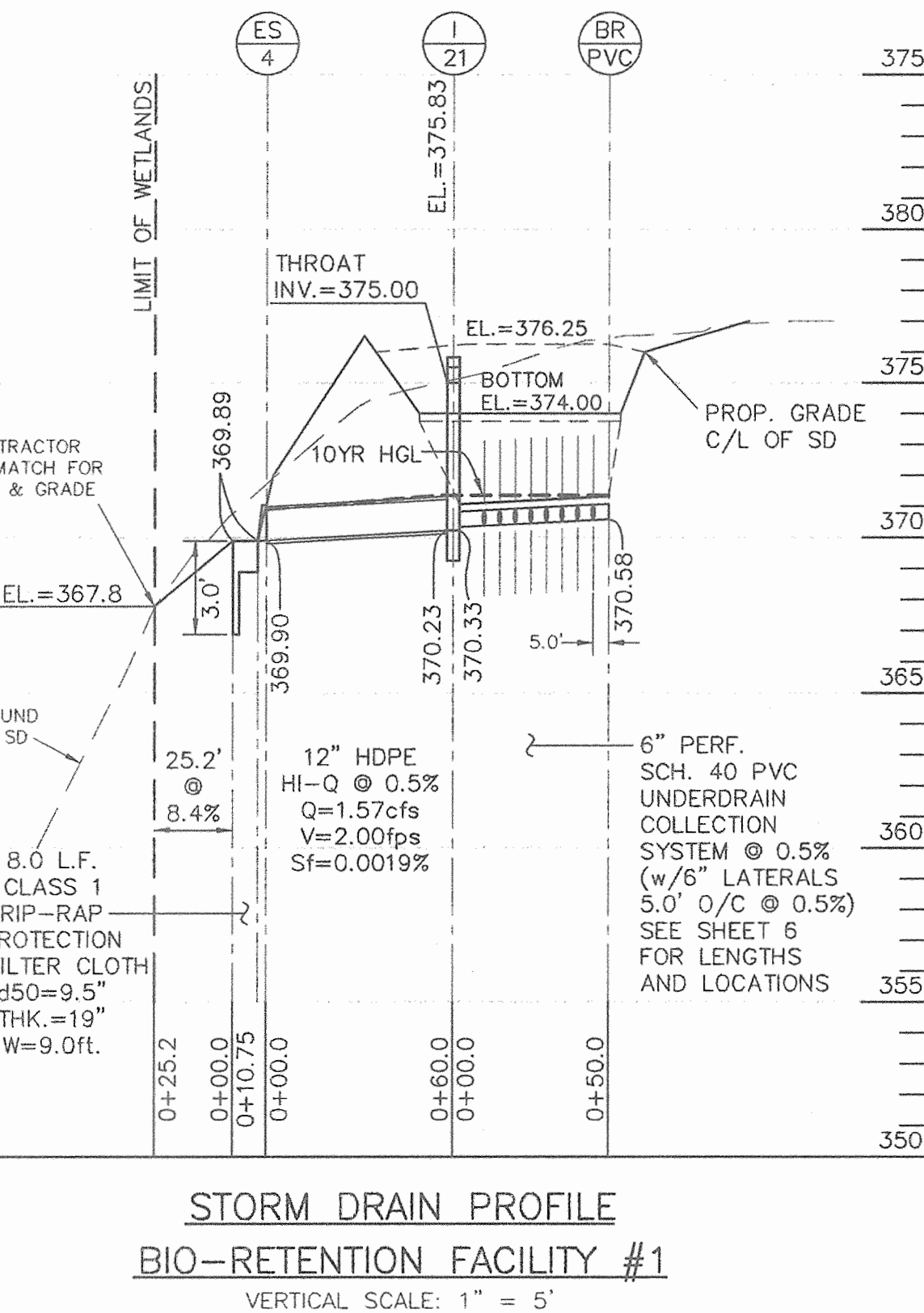
**SHC PROFILE - BLDG. "H"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



**STORM DRAIN PROFILE - BLDGS. "H" & "I"**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'

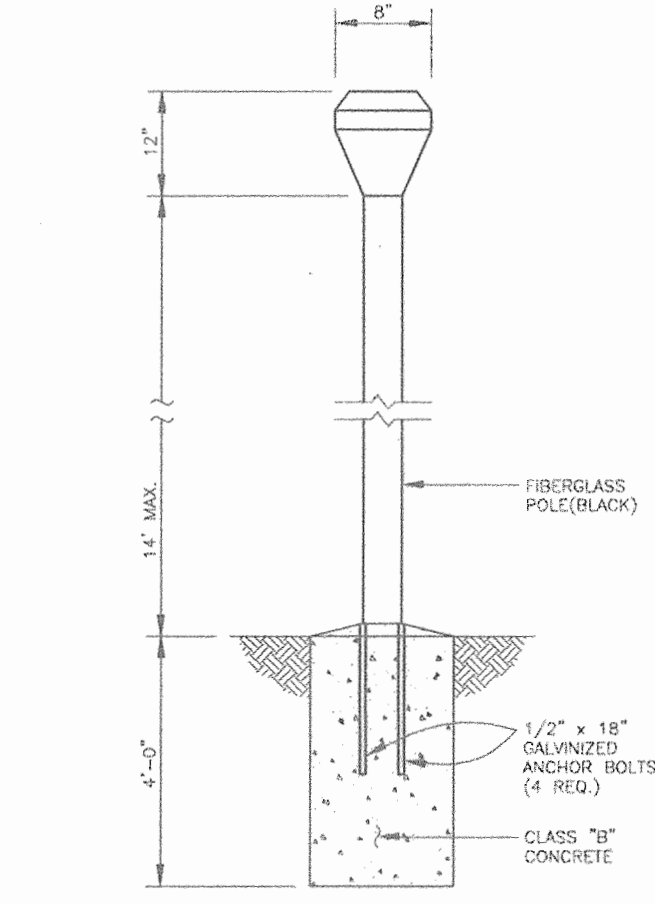


**STORM DRAIN PROFILE - BIO-RETENTION FACILITY #2**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'



**STORM DRAIN PROFILE - BIO-RETENTION FACILITY #1**  
 VERTICAL SCALE: 1" = 5'  
 HORIZONTAL SCALE: 1" = 50'

STREET LIGHT SCHEDULE		
SYMBOL	DESCRIPTION	LOCATION
	100 WATT LIPS VAPOR "TRADITIONAL" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	STA. 0+33.82 - 15.0' RT. PARKING LOT



**STREET LIGHT DETAIL**  
 NOT TO SCALE

NOTES:  
 1) ALL LIGHT FIXTURES TO BE 100 WATT HIGH PRESSURE SODIUM VAPOR TYPE "TRADITIONAL" POST TOP FIXTURE MOUNTED ON A 14.0' (MAX.) BLACK FIBERGLASS POLE.  
 2) LOCATION OF LIGHT FIXTURES ARE ON THE PLAN AND SHOWN AS  $\odot$ .

STRUCTURE SCHEDULE									
NO.	TYPE	LOCATION	INVERT IN	INVERT IN	INVERT OUT	TOP ELEV.	HO. CO. STD.	REMARKS	FRONT TO BACK INSIDE DIM. OF INLET
I-21	"0" INLET	N 589464.90 E 1385236.14	375.00(THROAT)	370.33(6" PVC)	370.23	375.83	SD-4.11	BIO-RETENTION FACILITY #1	2'-6"
I-22	"0" INLET	N 589282.84 E 1385424.19	370.81(THROAT)	365.87(6" PVC)	365.77	371.64	SD-4.11	BIO-RETENTION FACILITY #2	2'-6"
I-23	SEE SAN DETAILS	C/L STA. 4+35.85 OFF. 31.00' LT.	377.52	-	377.42	382.10(CURB)	-	CLEAR WELL PORTION USED FOR LOCATION	3'-0"
MH-8	STD. 4.0' PRE-CAST	N 589287.05 E 1385389.06	365.59(12")	365.59(15")	365.49	371.80	G-5.11	-	-
MH-9	STD. 4.0' PRE-CAST	N 589340.86 E 1385377.01	369.16	-	369.06	378.20	G-5.11	-	-
MH-10	STD. 4.0' PRE-CAST	C/L STA. 4+89.27 OFF. 33.33' RT.	372.40	-	372.30	385.46	G-5.11	-	-
ES-4	12" HDPE	N 589415.83 E 1385570.67	359.90	-	369.89	-	-	SEE MANUFACTURER'S SPECS.	-
ES-5	18" HDPE	N 589203.47 E 1385345.61	365.02	-	365.00	-	-	SEE MANUFACTURER'S SPECS.	-

PIPE SCHEDULE		
SIZE	LENGTH	TYPE & CLASS
12"	178.4'	HDPE HI-Q
15"	105.0'	HDPE HI-Q
18"	97.8'	HDPE HI-Q
6"	315.5'	PERF. SCH. 40 PVC

NOTE: WATER METERS SHALL HAVE INTERIOR SETTINGS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Indy Stamos*  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*David McLaughlin*  
 DIRECTOR

DATE: 11/22/06

DEVELOPER:  
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BUILDER:  
 RYLAND HOMES  
 7250 PARKWAY DRIVE  
 SUITE 520  
 HANOVER, MD 21076  
 PHONE: 410-712-7012

PROJECT:  
 KAISER FARM APARTMENTS  
 SECTION 3 / PARCEL E-1

LOCATION:  
 TAX MAP 17 - BLOCK 24  
 PARCEL 733  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE:  
 UTILITY PROFILES,  
 NOTES AND DETAILS

DATE:  
 APRIL, 2002  
 SEPTEMBER 27, 2006

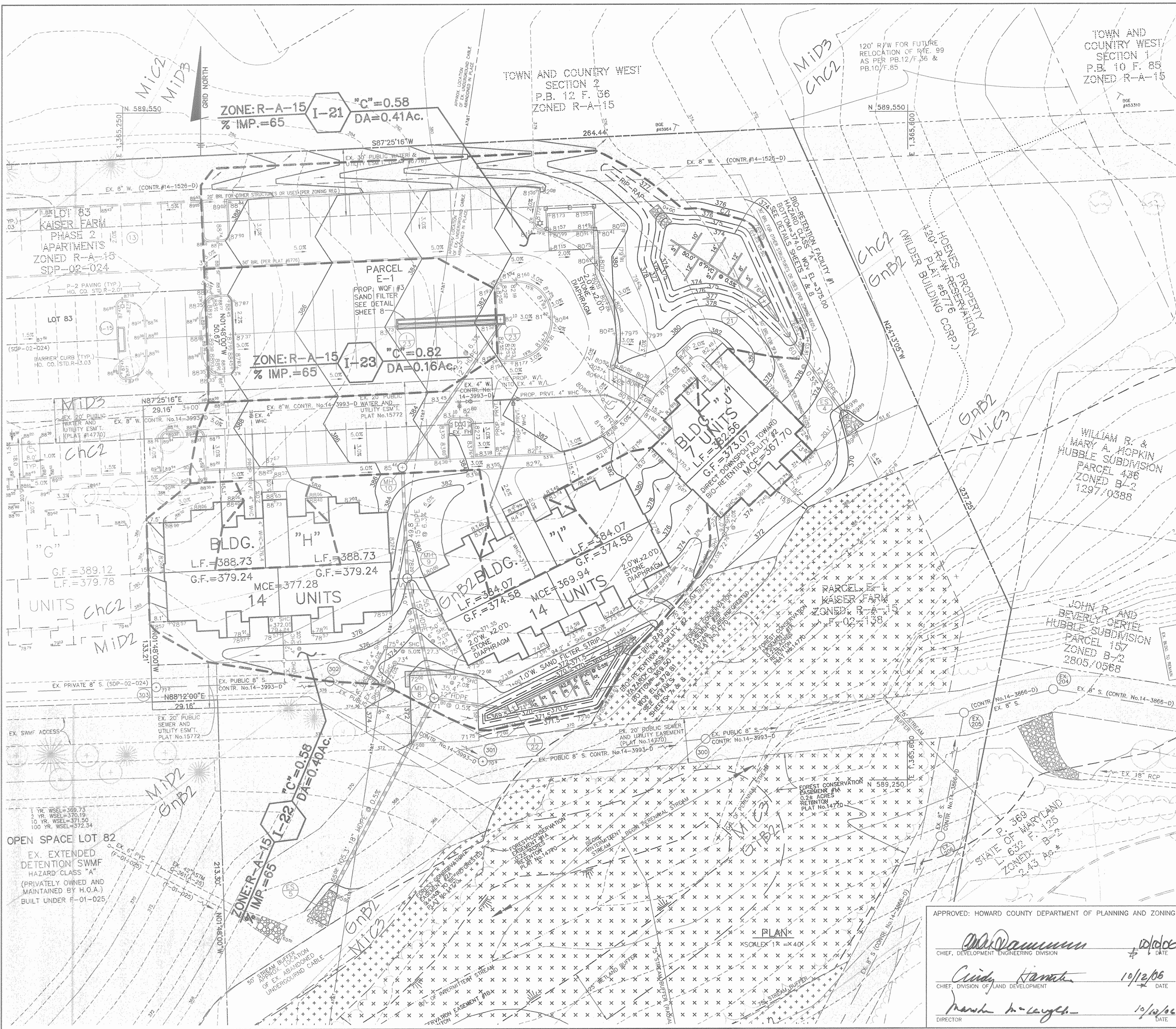
PROJECT NO. 1530

SCALE: AS SHOWN DRAWING 5 OF 9

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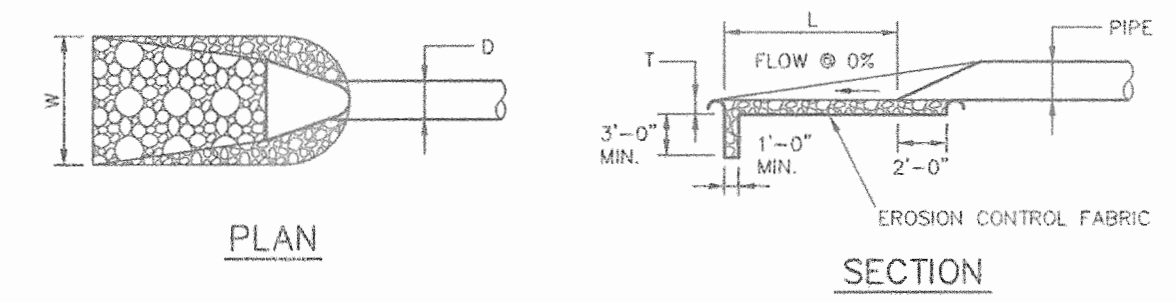
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*Howard County*  
 PROFESSIONAL ENGINEER



SOILS LEGEND		
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
CH2	B	CHESTER SILT LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
GB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GB2*	C	GLENELG SILT LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MC2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MC3	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MD2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MD3	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

SOILS MAP No. 16  
\* - INDICATES HYDRIC SOIL



STRUCTURE	D-50	LENGTH(L)	WIDTH(W)	THICK(T)	SHA CLASS
ES-4	9.5"	8.0' @ 0%	9.0'	19"	1
ES-5	9.5"	15.0' @ 0%	10.0'	19"	1

OUTLET PROTECTION DETAIL  
NOT TO SCALE

NO.	DATE	REVISION

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**ENGINEERING, INC.**

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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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BUILDER: RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS  
SECTION 3 / PARCEL E-1  
LOCATION: TAX MAP 17 - BLOCK 24  
PARCEL 733  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAINAGE AREA  
PLAN AND SOILS MAP

DATE: APRIL 2002  
SEPTEMBER 27, 2006 PROJECT NO. 1530

Design: DAM/MCR Draft: MCR Check: DAM SCALE: AS SHOWN DRAWING 6 OF 9

**CONSTRUCTION SPECIFICATIONS**

These specifications are appropriate to all ponds within the scope of the Standard for projects MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

**Site Preparation**  
Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp berms shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the pond and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

**Earth Fill**  
Material - The fill material shall be taken from approved designated borrow areas. It shall be free of rocks, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification CC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

**Materials** used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

**Placement** - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

**Compaction** - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be treated by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired, or vibratory roller. Fill material shall contain either moisture such that the required degree of compaction will be obtained with job equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not so wet that water can be squeezed out of the ball.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ± 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

**Structure Backfill**  
Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

**Structure Backfill** may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The flowable fill shall have a minimum pH of 4.0 and an unconfined compressive strength. The flowable fill shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be over (bedding), over and, on the side of the pipe. It only needs to extend up to the spring line for rigid conduits. Average spacing of the fill shall be 2' to ensure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be continuously coated. Adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

**Pipe Conduits**  
All pipes shall be circular in cross section.

**Elastic Pipe** - The following criteria shall apply for plastic pipe:  
1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.  
2. Joints and connections to anti-seep collars shall be completely watertight.  
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.  
4. Backfilling shall conform to "Structure Backfill".  
5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

**Drainage Diaphragms** - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

**Concrete**  
Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

**Rock Riprap**  
Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

**Geotextile** shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

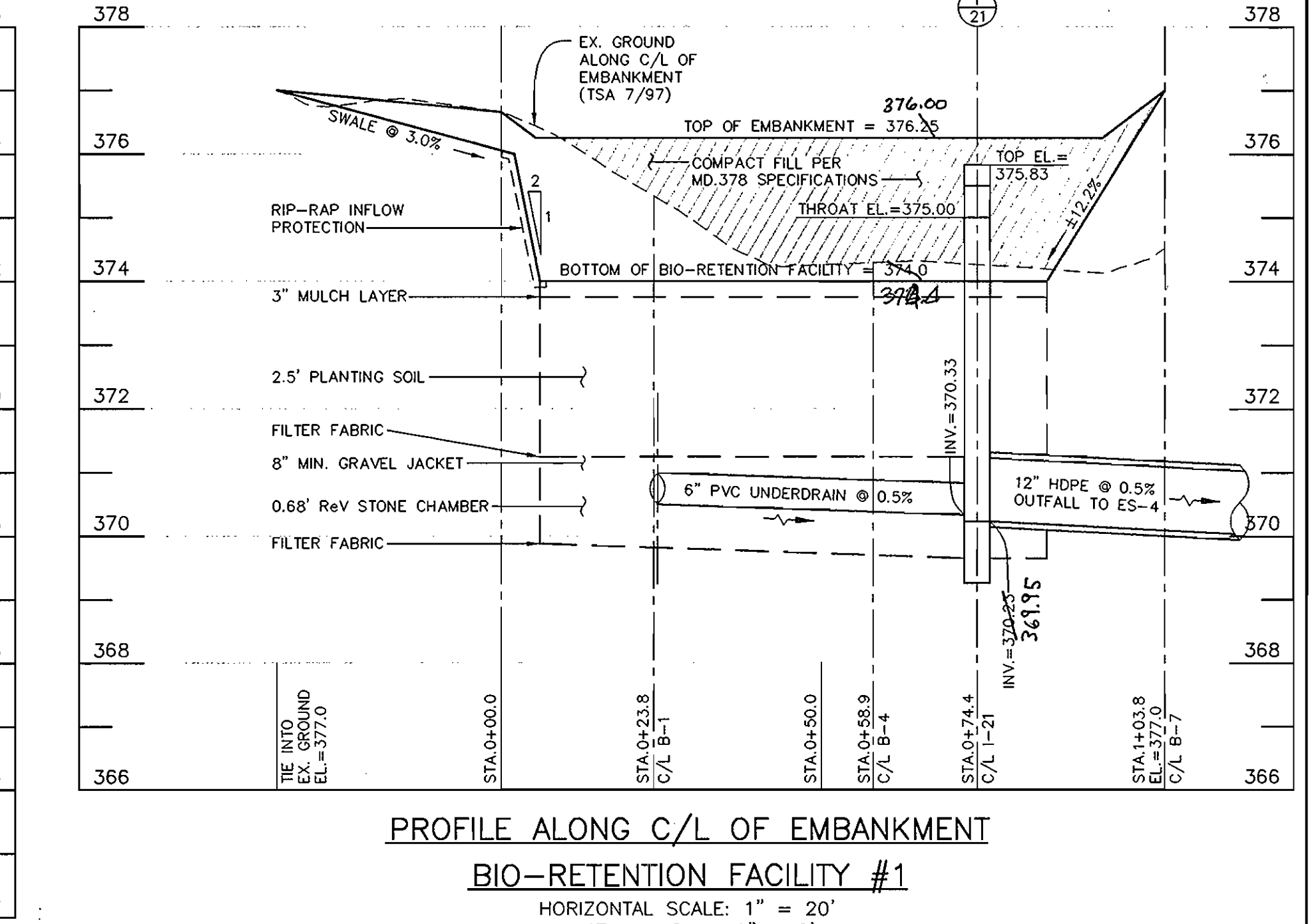
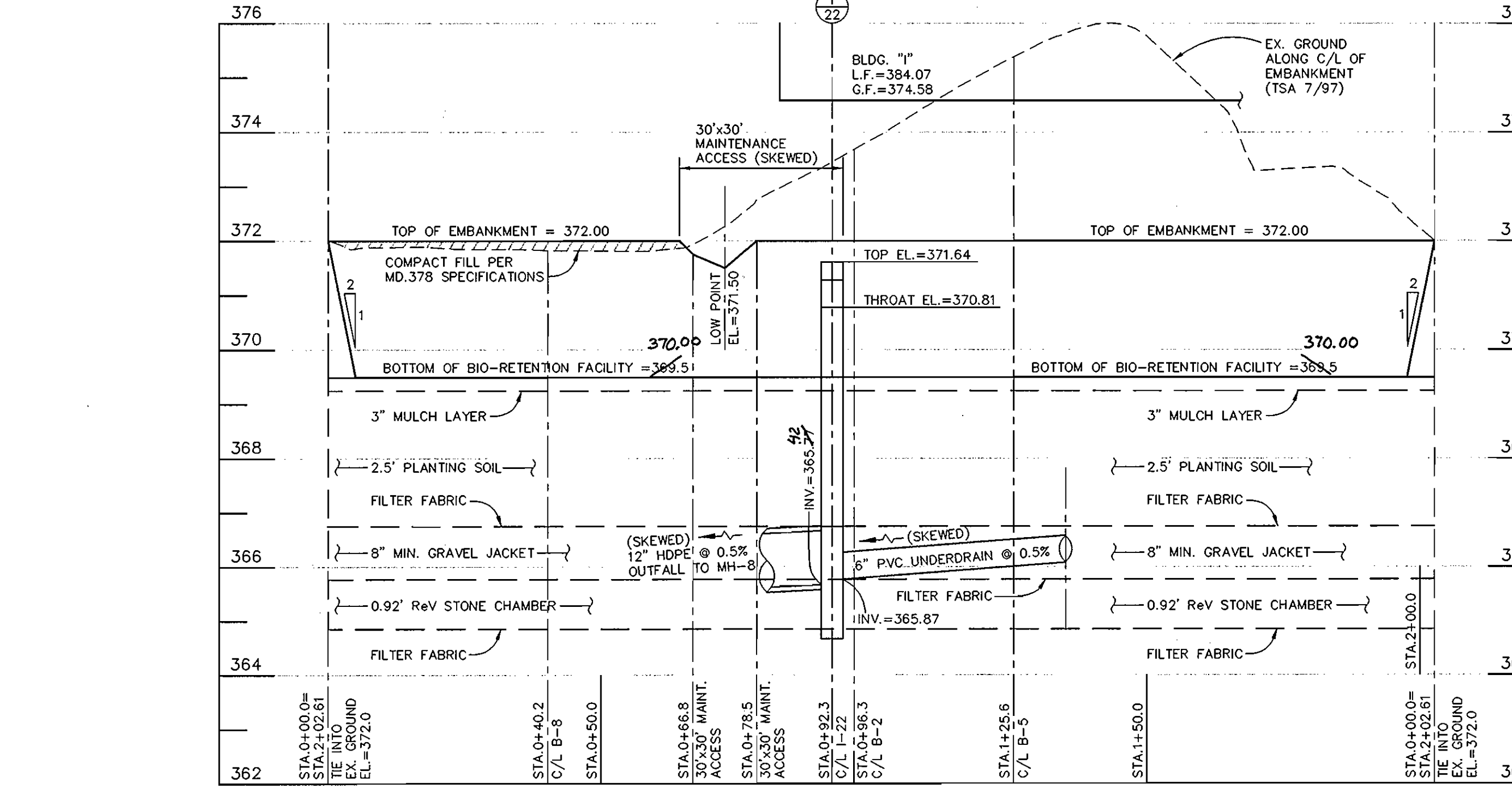
**Core of Water during Construction**  
All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundations, and other parts of the work free from water or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or lowered and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the location being refilled shall be maintained below the bottom of the excavation at such locations which may require dewatering the water pumps from which the water shall be pumped.

**Stabilization**  
All borrow areas shall be graded to provide proper drainage and left in a slightly channel. All exposed surfaces of the embankment, spillway, seal and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

**Erosion and Sediment Control**  
Construction operations will be carried out in such a manner that erosion will be controlled and water and soil pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

**IN-SITU INFILTRATION**

BORING NO.	DEPTH OF TEST (IN.)	MEASURED RATE (IN./HR.)
1	4'	0.360
2	7'	0.000
3	9'	0.000
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-



HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-1

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 2 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-2

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-3

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

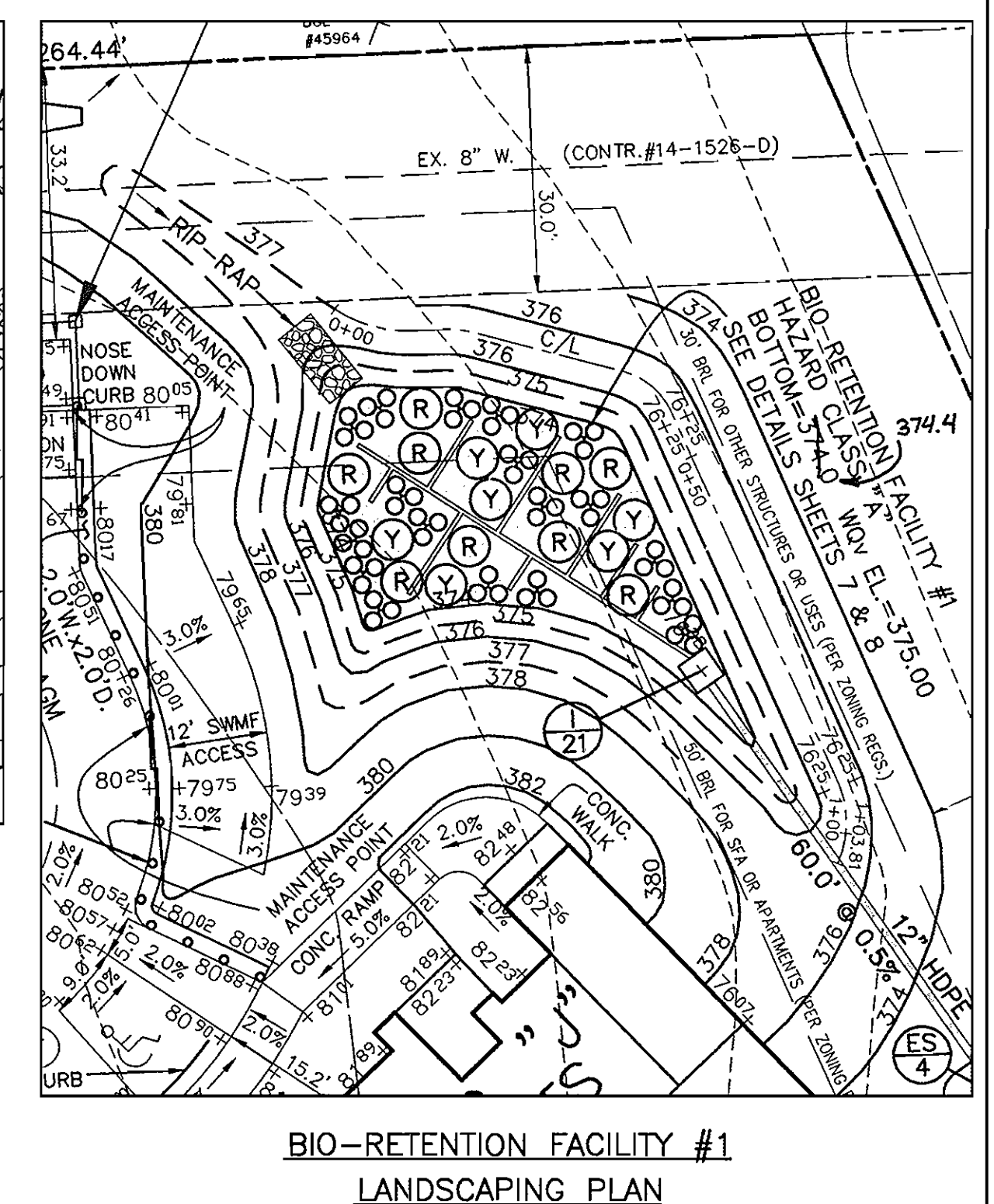
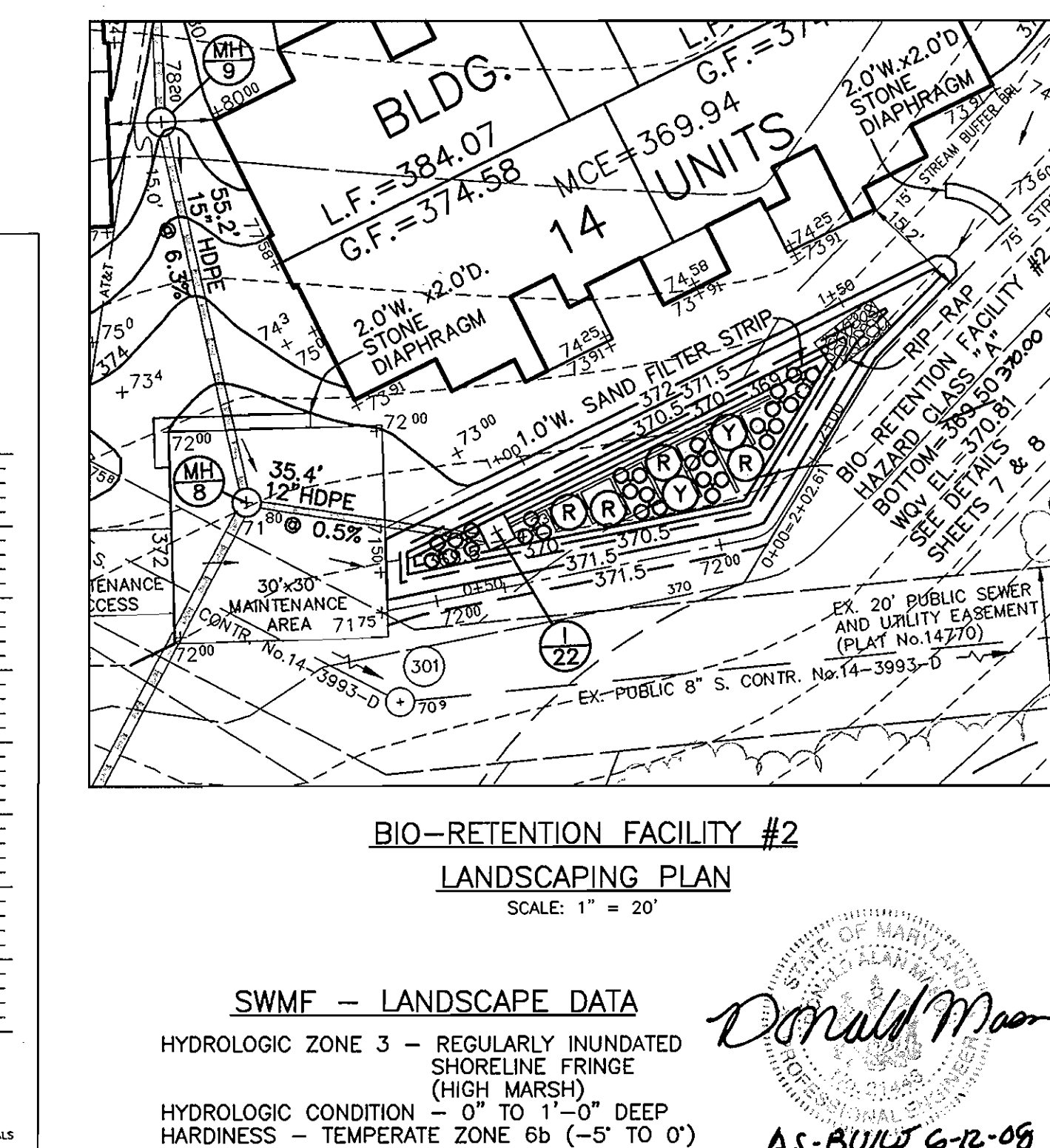
ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-4

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>



HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-5

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-6

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-7

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 1

PROJECT NAME: KAISER FARM PHASE 3 SWM BORING # B-8

LOCATION: HOWARD COUNTY, MARYLAND JOB # 01473A

ELEV.	SOIL DESCRIPTION	STRA.	DEPTH	SCALE	CON.	BELOW	NO.	REC.	BORING & SAMPLING NOTES
120.0	Surface		0.0						3\"/>

**BIO-RETENTION FACILITY #2 LANDSCAPING PLAN**  
SCALE: 1" = 20'

**SWMF - LANDSCAPE DATA**  
HYDROLOGIC ZONE 3 - REGULARLY INUNDED SHORELINE FRINGE (HIGH MARSH)  
HYDROLOGIC CONDITION - 0' TO 1'-0" DEEP  
HARDINESS - TEMPERATE ZONE 6b (-5' TO 0')  
SEE SHEET 4 FOR SEQUENCE OF CONSTRUCTION

NOTE: REFER TO MDE 2000 MD STORMWATER DESIGN MANUAL VOLUMES 1 & 2 FOR LANDSCAPE CONTRACTOR RESPONSIBILITIES, PRACTICES AND MAINTENANCE DUTIES

SYMBOL	QUANTITY	NAME	REMARKS
(R)	13	RHOODODENDRON CANADENSE "RHODOODENDRON"	2'0" - 2'5" HT. 12" - 18" W. 24" SP. MIN.
(Y)	9	ILEX VOMITORIA "WAXON HOLLY"	5'0" - 6'0" HT. UNSEARED
(O)	29	ANDROPOGON GLOMERATUS "BUSHY BEARGRASS"	UP TO 12" WHIPS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Donald Moore* 10/10/06

CHIEF, DIVISION OF LAND DEVELOPMENT: *Guido Hammer* 10/12/06

DIRECTOR: *Mark McLaughlin* 1/12/06

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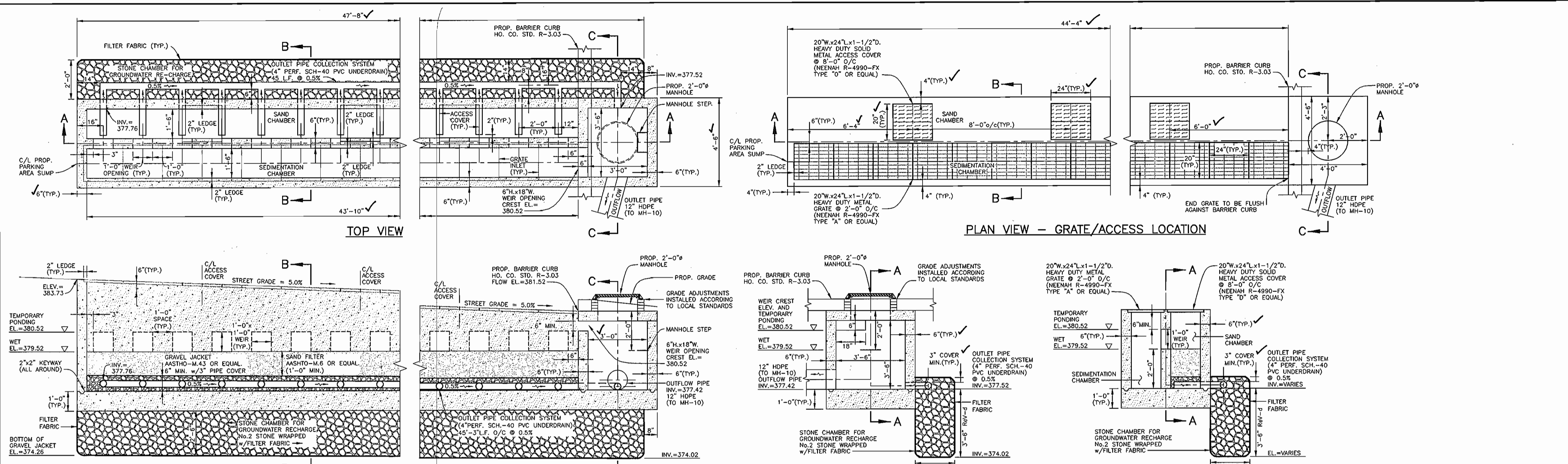
BUILDER: RYLAND HOMES 7250 PARKWAY DRIVE SUITE 520 HANOVER, MD 21076 PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1  
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORMWATER QUALITY FACILITY PLANS, NOTES AND DETAILS

DATE: APRIL, 2002 PROJECT NO. 1530  
SEPTEMBER 27, 2006

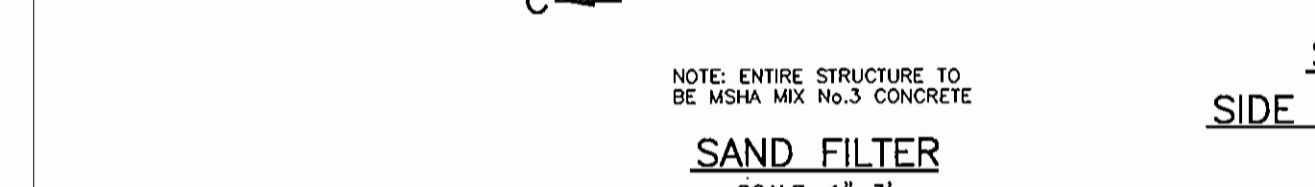
SCALE: AS SHOWN DRAWING 7 OF 9



MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 35-60% SILT: 30-35% CLAY: 10-25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PER GRAVEL DIAPHRAGM AND CURTAIN DRAIN	ASTM D-448 ORNAMENTAL STONE: WASHED COBBLES	PER GRAVEL: NO. 8 STONE 2" TO 5"	
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4753) GRAB TENSILE STRENGTH: (ASTM D-4753) PUNCTURE RESISTANCE: (ASTM D-4753)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	ASTM M-43	0.375" TO 0.750"	3/8" PERI @ 6" O/C, 4 HOLES PER ROW MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERDRAIN PIPES
UNDERDRAIN PIPING	7558, TYPE P228 OR 7558, TYPE P228 OR 50R35	4" TO 6" RIGID GRATEL OVER PVC OR 50R35	
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3, Fc=3500psi @ 28 DAYS, NORMAL WEIGHT, NOT PREVIOUSLY APPROVED, ENHANCED, REINFORCING TO MEET ASTM B15-80	N/A	ON-SITE TESTING OF FOURS-IN-PLACE CONC. REQUIRED: 30 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE WEARING SURFACE, 150 LB/RS. VERTICAL LOADING (4-10 IN. RC-30) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESURE); AND ANALYSIS OF POTENTIAL CRACKING. SAND SUBSTITUTIONS SUCH AS GYPSUM AND GRAYSTONE ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DELICIOUS SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
SAND (1.0' DEEP)	ASTM M-6 OR ASTM C-33	0.002" TO 0.04"	

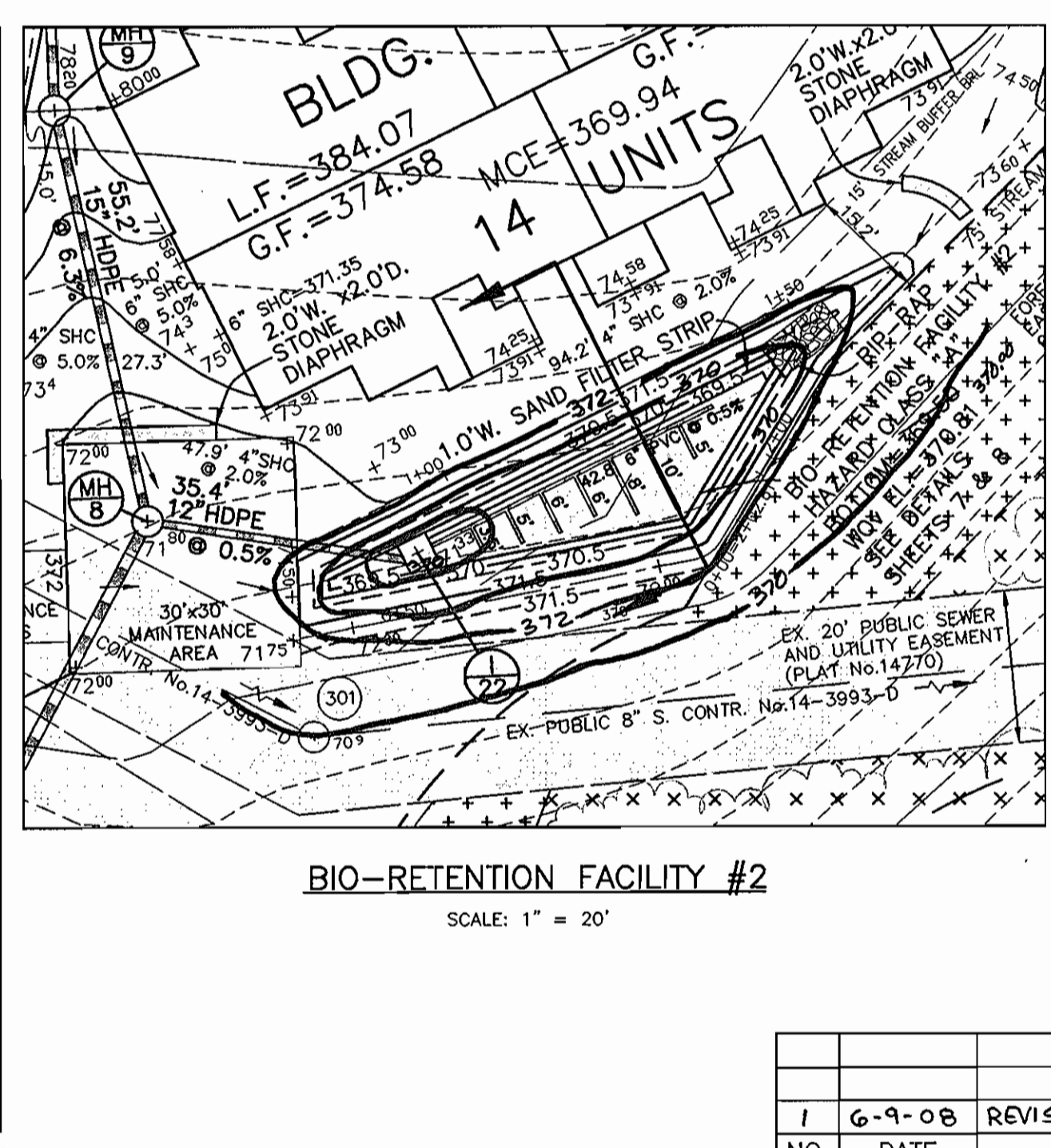
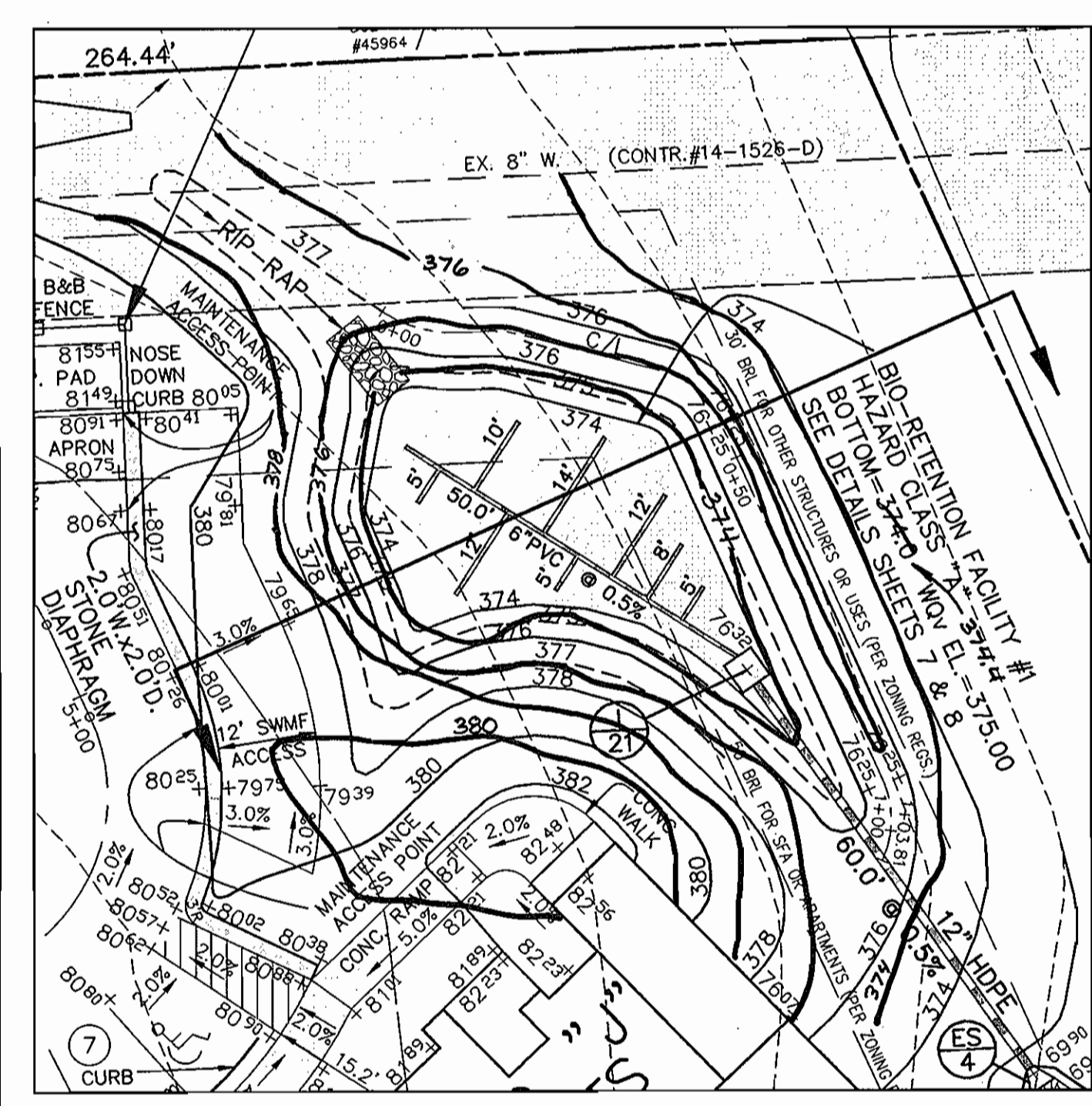
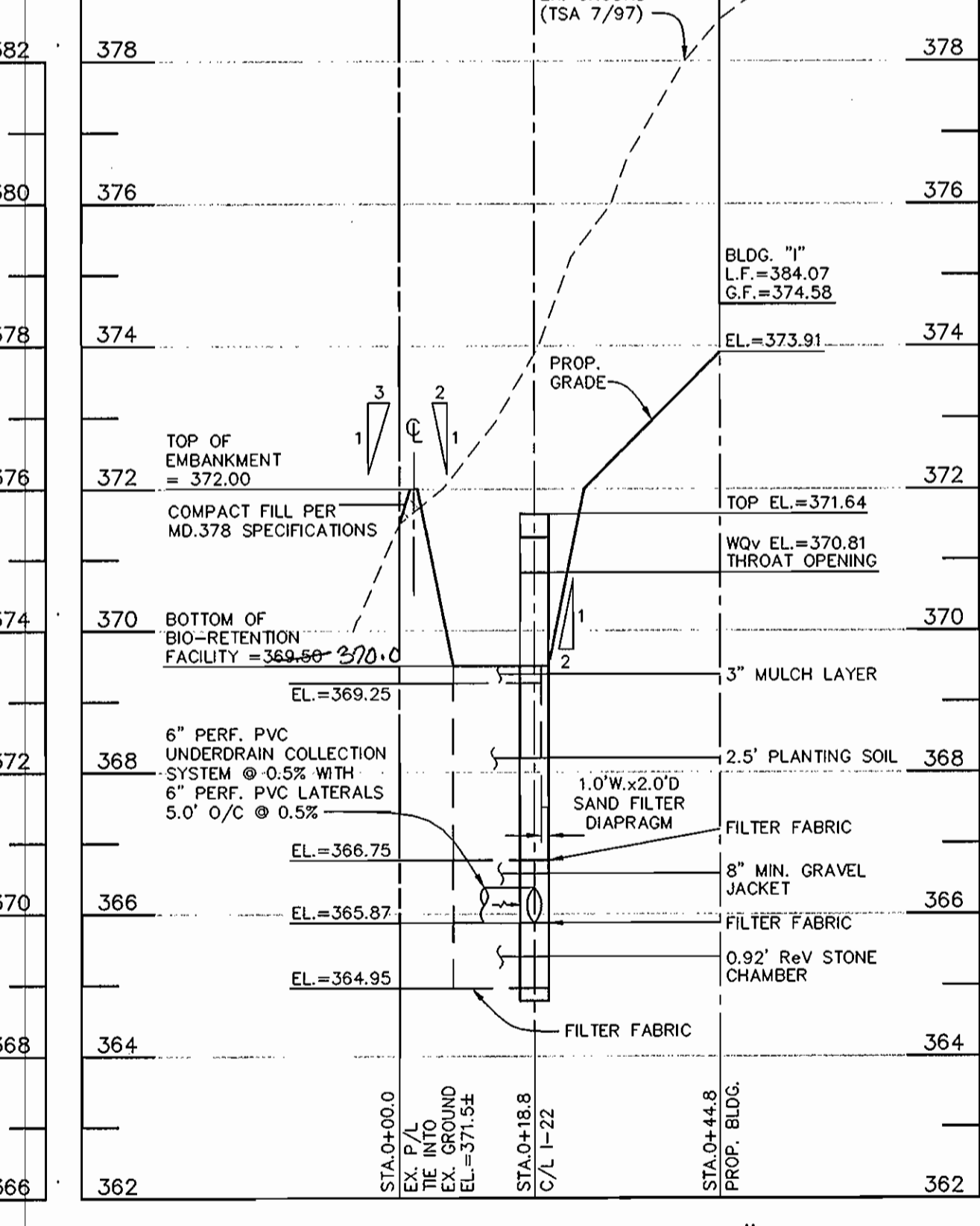
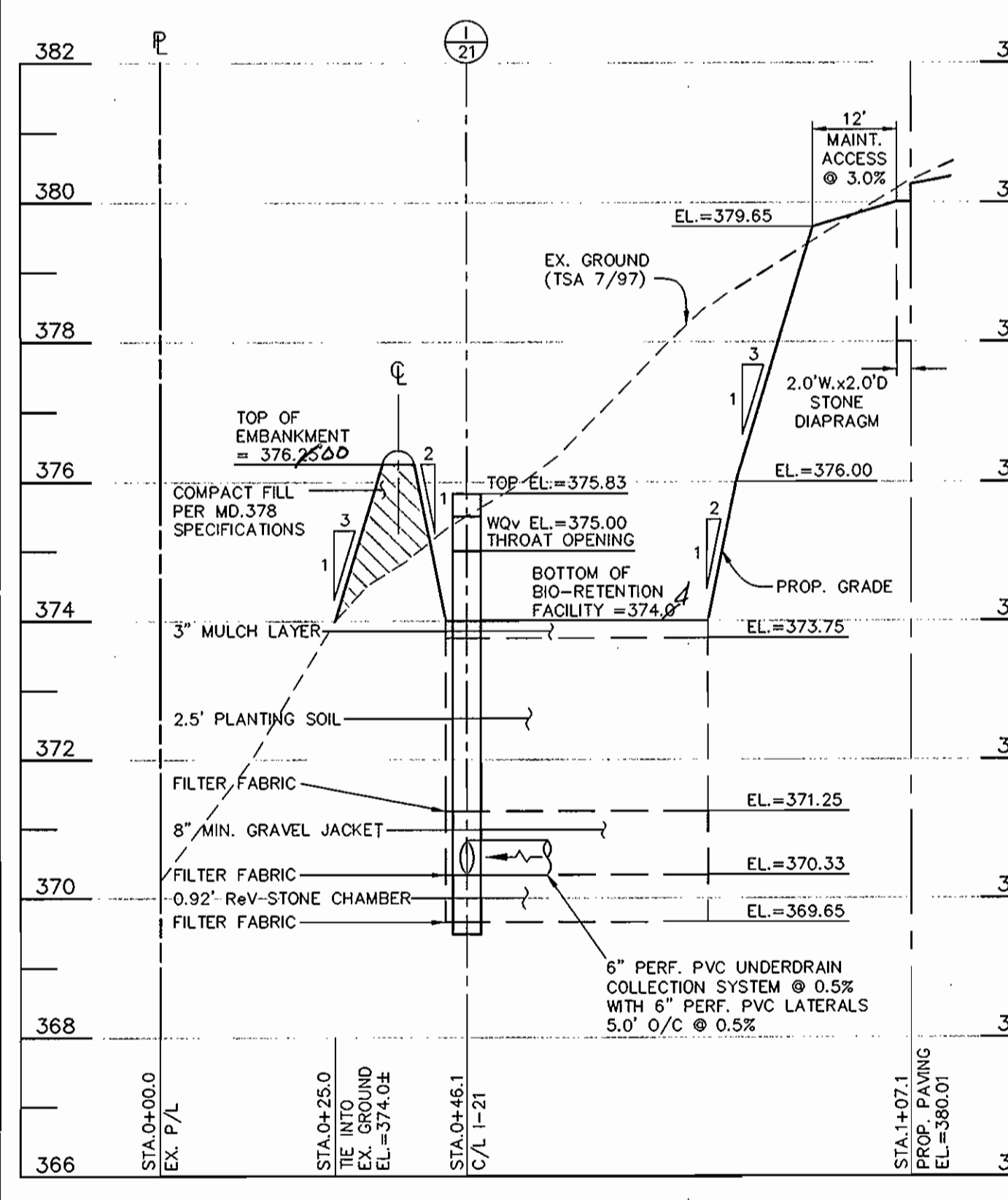
**OPERATION & MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS**

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH-OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN THE SPRING AND FALL. THIS INSPECTION WILL INCLUDE: REMOVAL OF DEAD & DISEASED VEGETATION CONSIDERED BEYOND TREATMENT; TREATMENT OF ALL DISEASED TREES & SHRUBS; AND REPLACEMENT OF ALL DEFICIENT STAKES & WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



**OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS SAND FILTER (1-23)**

- THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
- DEBRIS & LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
- SEDIMENT SHALL BE CLEANED-OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES. VEGETATION WITHIN THE SEDIMENT CHAMBER SHALL BE LIMITED TO A HEIGHT OF 18 INCHES.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS & LIQUIDS MUST BE FOLLOWED BY THE OWNER.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



STEP	REQUIREMENT	VOLUME REQUIRED (AC.-FT.)	NOTES
1	WATER QUALITY VOLUME (WQv)	0.030	THIS VOLUME PROVIDED WITHIN BIO-RETENTION FACILITY #1
2	RECHARGE VOLUME (ReV)	0.007	THIS VOLUME PROVIDED UNDER BIO-RETENTION FACILITY #1
3	CHANNEL PROTECTION VOLUME (CPv)	N/A	EXTENDED DETENTION PROVIDED UNDER F-01-025
4	OVERBANK FLOOD PROTECTION VOLUME (O'p)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA
5	EXTREME FLOOD VOLUME (O'f)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA

STEP	REQUIREMENT	VOLUME REQUIRED (AC.-FT.)	NOTES
1	WATER QUALITY VOLUME (WQv)	0.0212	THIS VOLUME PROVIDED WITHIN BIO-RETENTION FACILITY #2
2	RECHARGE VOLUME (ReV)	0.004	THIS VOLUME PROVIDED UNDER BIO-RETENTION FACILITY #2
3	CHANNEL PROTECTION VOLUME (CPv)	N/A	EXTENDED DETENTION PROVIDED UNDER F-01-025
4	OVERBANK FLOOD PROTECTION VOLUME (O'p)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA
5	EXTREME FLOOD VOLUME (O'f)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA

STEP	REQUIREMENT	VOLUME REQUIRED (AC.-FT.)	NOTES
1	WATER QUALITY VOLUME (WQv)	0.0085	THIS VOLUME PROVIDED WITHIN THE SAND FILTER
2	RECHARGE VOLUME (ReV)	0.0021	PROVIDED WITHIN STONE CHAMBER ADJACENT TO THE SAND FILTER
3	CHANNEL PROTECTION VOLUME (CPv)	N/A	EXTENDED DETENTION PROVIDED UNDER F-01-025
4	OVERBANK FLOOD PROTECTION VOLUME (O'p)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA
5	EXTREME FLOOD VOLUME (O'f)	N/A	D.A. NOT IN DESIGNATED FLOOD AREA

**BIO-RETENTION FACILITY #1**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

**BIO-RETENTION FACILITY #2**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 2'

**BIO-RETENTION FACILITY #1**  
SCALE: 1" = 20'

**BIO-RETENTION FACILITY #2**  
SCALE: 1" = 20'



6-9-08 REVISED PER AS-BUILT CONDITIONS  
NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
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STATE OF MARYLAND PROFESSIONAL ENGINEER  
David A. Beaton  
No. 21445  
6-12-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*David A. Beaton*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 6/10/08

*David A. Beaton*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 6/10/08

*David A. Beaton*  
DIRECTOR  
DATE: 6/10/08

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PROJECT: KAISER FARM APARTMENTS  
SECTION 3 / PARCEL E-1  
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Design: DAM/MCR Draft: MCR Check: DAM SCALE: AS SHOWN DRAWING 8. OF 9

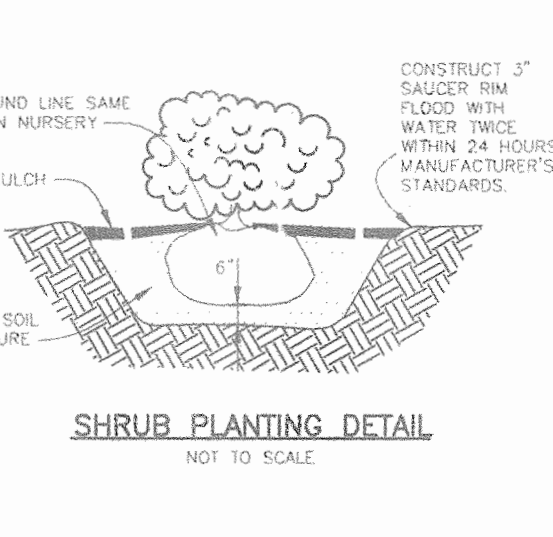




SCHEDULE A PERIMETER LANDSCAPE EDGE			
CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO NON-RESIDENTIAL
PERIMETER NO. / LANDSCAPE TYPE	1 B	2 B	3 B
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)	264.4'	237.3'	257.0'
CREDIT FOR EXISTING VEGETATION: NO OR YES (✓/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	YES
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (✓/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO
NUMBER OF PLANTS REQUIRED:			
SHADE TREES	5	5	5
EVERGREEN TREES	7	7	6
OTHER TREES (2:1 SUBSTITUTE)	1	1	1
SHRUBS	1	1	1
NUMBER OF PLANTS PROVIDED:			
SHADE TREES	5	5	5
EVERGREEN TREES	7	7	6
OTHER TREES (2:1 SUBSTITUTE)	1	1	1
SHRUBS (1:1 SUBSTITUTE)	1	1	1

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING	
NUMBER OF PARKING SPACES	63
NUMBER OF TREES/SHRUBS REQUIRED	6
NUMBER OF TREES PROVIDED:	
SHADE TREES	6
OTHER TREES (2:1 SUBSTITUTE)	0
SHRUBS (1:1 SUBSTITUTE)	0

SCHEDULE C - RESIDENTIAL INTERNAL LANDSCAPING	
NUMBER OF DWELLING UNITS	35
NUMBER OF TREES REQUIRED: (1/200 SPA - 1/200 APT.)	12
NUMBER OF TREES PROVIDED:	
SHADE TREES	10
OTHER TREES (2:1 SUBSTITUTE)	2
SHRUBS (1:1 SUBSTITUTE)	20



PERIMETER PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
+	10	PLATANUS ACERIFOLIA "BROADLEAF LONDON PLANE"	2.5'-3.0" MIN. CAL. B & B FULL HEAD
⊗	13	PRUNUS STROBUS "EASTERN WHITE PINE"	6.0'-8.0" MIN. HT. UNHEADED

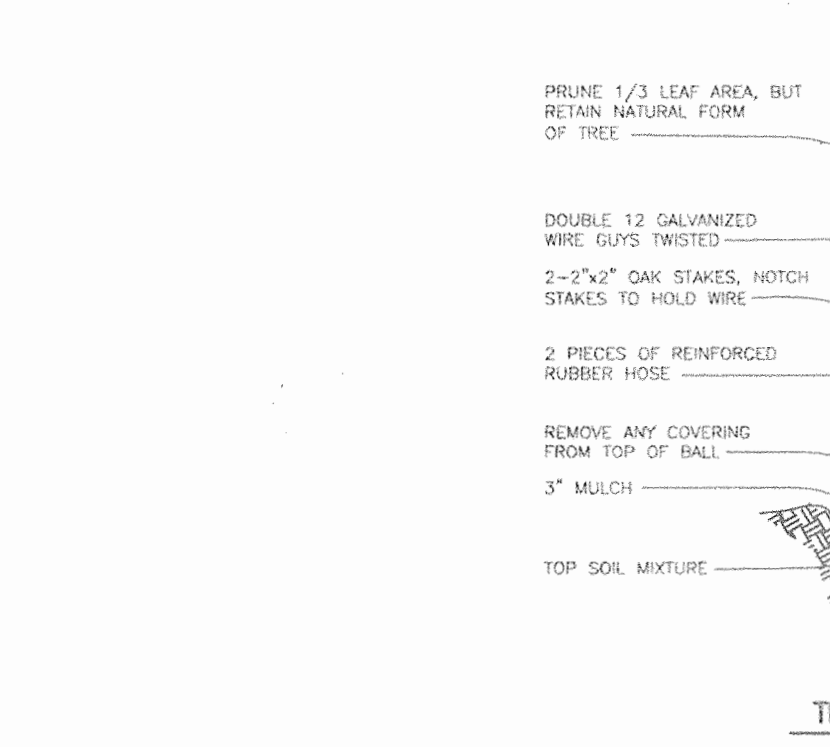
INTERNAL PARKING PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
+	7	ACER RUBRA "RED MAPLE"	2.5'-3.0" MIN. CAL. B & B FULL HEAD

INTERNAL RESIDENTIAL PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
⊙	10	ACER SACCHARINUM "SUGAR MAPLE"	2.5'-3.0" MIN. CAL. B & B FULL HEAD
⊗	20	EUNYMIUS ALTA COMPACTA "DWARF WINGED EUNYMIUS"	2.5'-3.0" MIN. HT.

INTERNAL DUMPSTER PLANTING LIST			
SYMBOL	QUANTITY	NAME	REMARKS
⊗	2	PRUNUS STROBUS "EASTERN WHITE PINE"	6.0'-8.0" MIN. HT. UNHEADED

- LANDSCAPING NOTES**
- PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE INTERNAL STREET PARKING PLANTINGS, THE PRESERVATION OF THE PERIMETER VEGETATION AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
  - TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.
  - A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM ANY STREET LIGHTS.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC. 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$10,050.00.

IN ACCORDANCE WITH THE MEMORANDUM FROM THE DPW, BUREAU OF UTILITIES DATED 5/7/02 THAT IS A PART OF THE SDP-02-024 FILE, THE PROPOSED TREES ARE PERMITTED WITHIN THE NORTHERN 30' PUBLIC WATER AND UTILITY EASEMENT AT LOCATIONS 13' FEET NORTH OF THE WATER MAIN AND 2' FEET SOUTH OF THE NORTHERN EASEMENT LINE



NO.	DATE	REVISION

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELICOTT CITY, MD 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: bei@bei-civilengineering.com

9/25/06

**DEVELOPER'S/BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER: KAISER FARM, LLC *Stevens K. Weisau James R. Moly III* 9/25/06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chris Dammun* 10/02/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Andy Haman* 10/12/06  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Barbara J. Lough* 10/12/06  
DIRECTOR

DEVELOPER: KAISER FARM, L.L.C.  
P.O. BOX 417  
ELICOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

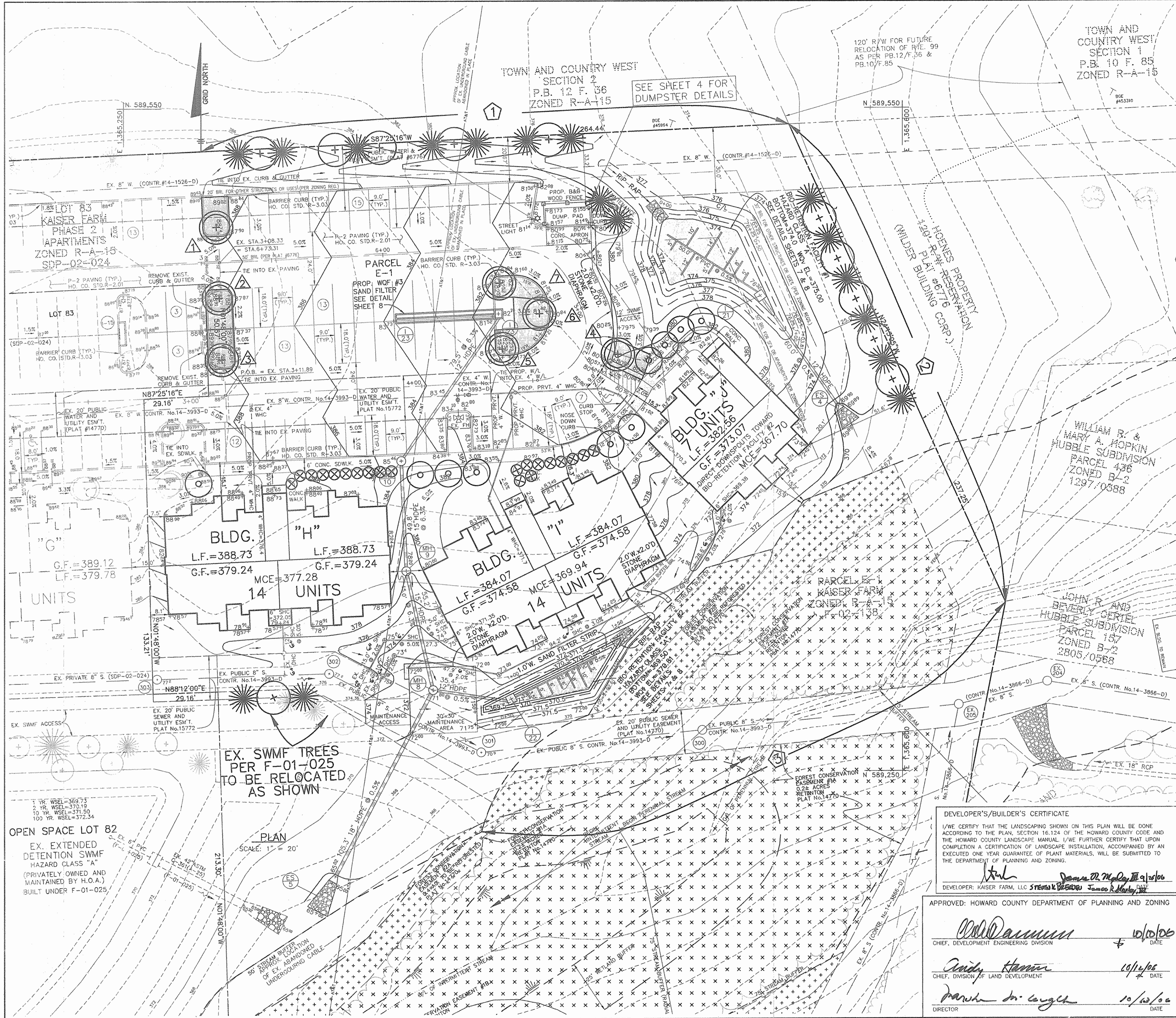
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN, NOTES AND DETAILS

DATE: APRIL 2002 SEPTEMBER 27, 2006 PROJECT NO. 1530

SCALE: AS SHOWN DRAWING 9 OF 9

Design: DAM/MCR Draft: MCR Check: DAM



**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAY	NO	YES	NO
PERIMETER NO. / LANDSCAPE TYPE		1	2	3
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)		264.4'	237.3'	257.0'
CREDIT FOR EXISTING VEGETATION: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	YES
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO
NUMBER OF PLANTS REQUIRED:				
SHADE TREES		5	5	-
EVERGREEN TREES		7	6	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-
NUMBER OF PLANTS PROVIDED:				
SHADE TREES		5	5	-
EVERGREEN TREES		7	6	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-

**SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING**

CATEGORY	ADJACENT TO ROADWAY	NO	YES	NO
PERIMETER NO. / LANDSCAPE TYPE		1	2	3
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)		264.4'	237.3'	257.0'
CREDIT FOR EXISTING VEGETATION: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	YES
CREDIT FOR WALL, FENCE OR BERM: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	NO
NUMBER OF PLANTS REQUIRED:				
SHADE TREES		5	5	-
EVERGREEN TREES		7	6	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-
NUMBER OF PLANTS PROVIDED:				
SHADE TREES		5	5	-
EVERGREEN TREES		7	6	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-

**PERIMETER PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
+	10	PLANTANUS ACERIFOLIA "BLOODGOOD LONDON PLANE"	2.5'-3.0' MIN. CAL. B & B FULL HEAD
⊗	13	PINUS STROBUS "EASTERN WHITE PINE"	6.0'-8.0' MIN. HT. UNSHARED

**INTERNAL PARKING PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
+	7	ACER RUBRA "RED MAPLE"	2.5'-3.0' MIN. CAL. B & B FULL HEAD

**INTERNAL RESIDENTIAL PLANTING LIST**

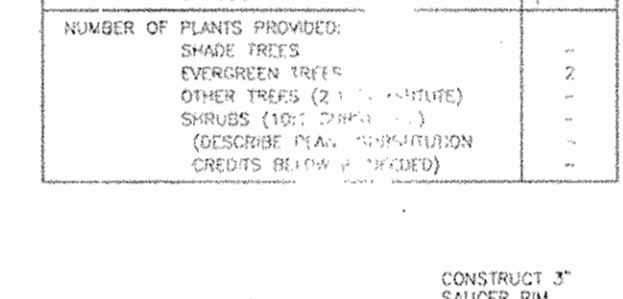
SYMBOL	QUANTITY	NAME	REMARKS
○	10	ACER SACCHARUM "SUGAR MAPLE"	2.5'-3.0' MIN. CAL. B & B FULL HEAD
⊗	20	EQUINUMUS ALTA COMPACTA "DWARF WINGED EQUINUMUS"	2.5'-3.0' MIN. HT.

**INTERNAL DUMPSTER PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
+	2	PINUS STROBUS "EASTERN WHITE PINE"	6.0'-8.0' MIN. HT. UNSHARED

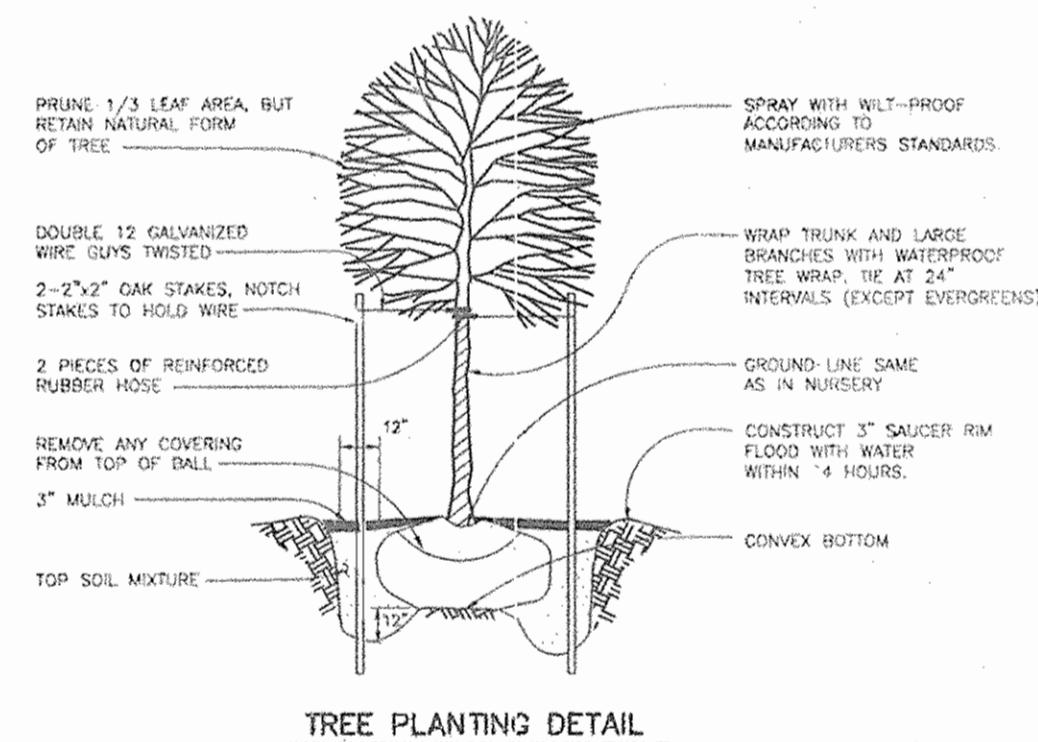
**DUMPSTER/LOADING/SERVICE AREA LANDSCAPING**

CATEGORY	ADJACENT TO ROADWAY	NO	YES	NO
LANDSCAPE / BUFFER TYPE		1	2	3
LOCATION OF DUMPSTER/LOADING/SERVICE AREA: LOT				
CREDIT FOR WALL OR FENCE: NO OR YES (W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO	NO	YES
NUMBER OF PLANTS REQUIRED:				
SHADE TREES		2	2	-
EVERGREEN TREES		2	2	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-
NUMBER OF PLANTS PROVIDED:				
SHADE TREES		2	2	-
EVERGREEN TREES		2	2	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-



- LANDSCAPING NOTES**
- PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE INTERNAL STREET PARKING PLANTINGS AS SHOWN ON THESE PLANS. SPACING FOR PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
  - TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.
  - A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM ANY STREET LIGHTS.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.-16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$100,000.00.

IN ACCORDANCE WITH THE MEMORANDUM FROM THE DPW, BUREAU OF UTILITIES DATED 5/7/02 THAT IS A PART OF THE SDP-02-024 FILE, THE PROPOSED TREES ARE PERMITTED WITHIN THE NORTHERN 30' PUBLIC WATER AND UTILITY EASEMENT AT LOCATIONS 13' FEET NORTH OF THE WATER MAIN AND 2' FEET SOUTH OF THE NORTHERN EASEMENT LINE



NO.	DATE	REVISION
1	12-9-06	REVISE SMC & DMC TO G"

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE & SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644  
 E-MAIL: bel@bel-civilengineering.com

**KAISER FARM APARTMENTS**  
 SECTION 3 / PARCEL E-1  
 TAX MAP 17 - BLOCK 24  
 PARCEL 73  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**DEVELOPER:** KAISER FARM, L.L.C.  
 P.O. BOX 417  
 ELLICOTT CITY, MD 21041  
 PHONE: 410-465-4244

**BUILDER:** RYLAND HOMES  
 7250 PARKWAY DRIVE  
 SUITE 520  
 HANOVER, MD 21076  
 PHONE: 410-712-7012

**TITLE:** LANDSCAPE PLAN, NOTES AND DETAILS  
 DATE: APRIL, 2002  
 SEPTEMBER 27, 2006  
 PROJECT NO. 1530  
 SCALE: AS SHOWN DRAWING 9 OF 9

**DEVELOPER'S/BUILDER'S CERTIFICATE**  
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER: KAISER FARM, L.L.C. *Stevan R. Pappas* *Jamoo R. Moly*  
 DATE: 10/10/06

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Old Dan*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 10/10/06

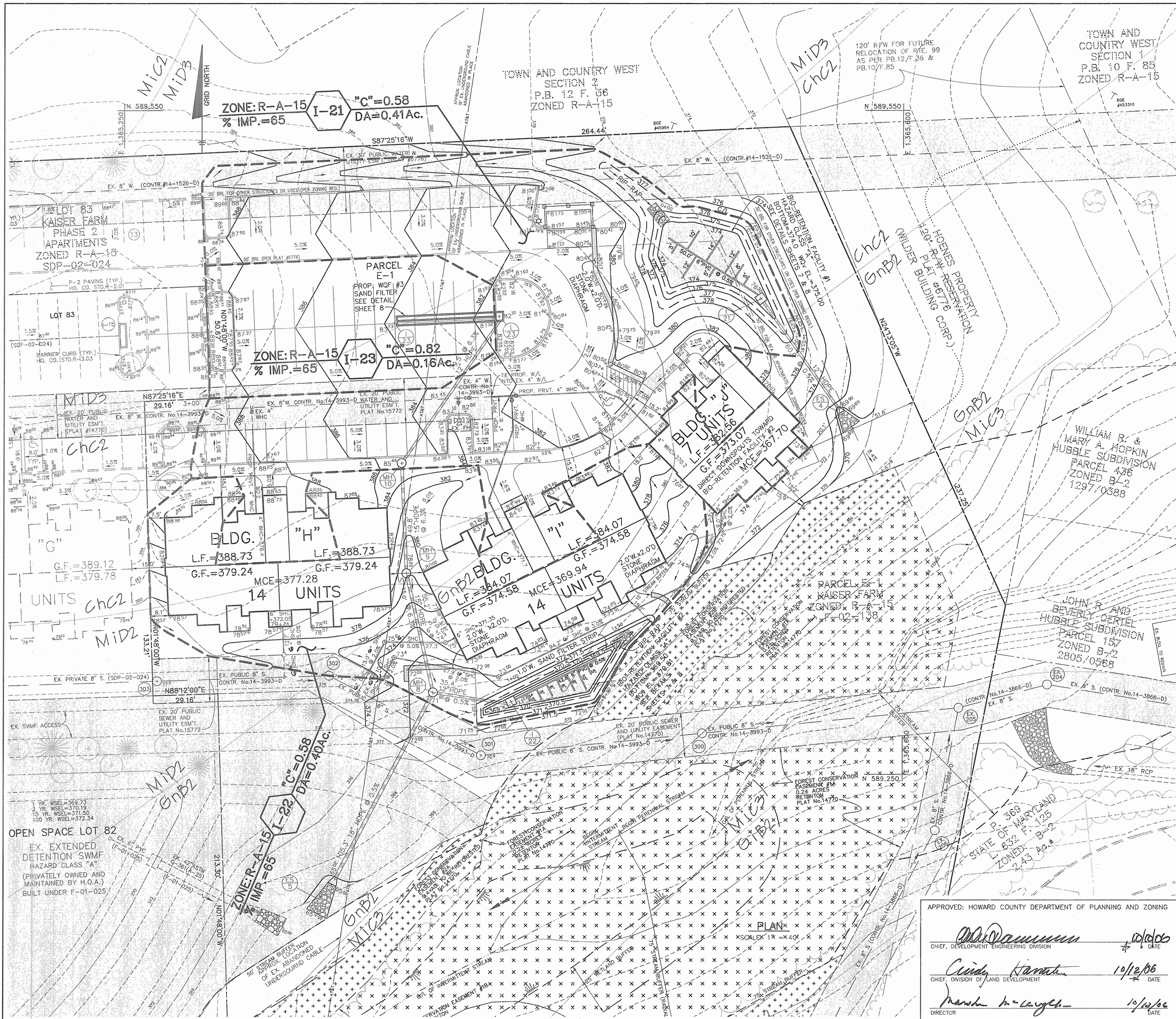
*Audrey Hamer*  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 10/10/06

*Patrick M. Lough*  
 DIRECTOR  
 DATE: 10/10/06

**OPEN SPACE LOT 82**  
 EX. EXTENDED DETENTION SWMF HAZARD CLASS "A" (PRIVATELY OWNED AND MAINTAINED BY H.O.A.) BUILT UNDER F-01-025

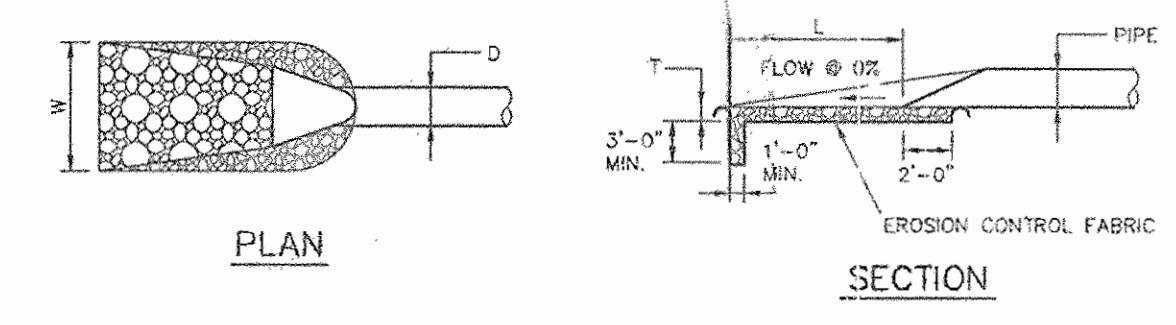
**EX. SWMF TREES PER F-01-025 TO BE RELOCATED AS SHOWN**

**PLAN**  
 SCALE: 1" = 20'



SOILS LEGEND		
MAP SYMBOL	SOIL TYPE	MAPPING UNIT
Chc2	B	CHESTER SILT LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
GnB2	B	GLENDELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GnB2*	C	GLENVILLE SILT LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MiC3	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MiC3	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MiD3	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MiD3	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

SOILS MAP No. 16  
\* - INDICATES HYDRIC SOIL



STRUCTURE	D-50	LENGTH(L)	WIDTH(W)	THICK(T)	SHA CLASS
ES-4	9.5'	8.0' @ 0%	9.0'	19"	
ES-5	9.5'	15.0' @ 0%	10.0'	19"	

OUTLET PROTECTION DETAIL  
NOT TO SCALE

NO.	DATE	REVISION
1	12-8-06	REVISE DHC/SHC TO C"

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6844  
E-MAIL: [bei@ei-civilengineering.com](mailto:bei@ei-civilengineering.com)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard Mason*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy Hamish*  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Mark McLaughlin*  
DIRECTOR

DATE: 10/12/06

DEVELOPER: KAISER FARM, L.L.C.  
P.O. BOX 417  
ELLCOTT CITY, MD 21041  
PHONE: 410-465-4244

BUILDER: RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

PROJECT: KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

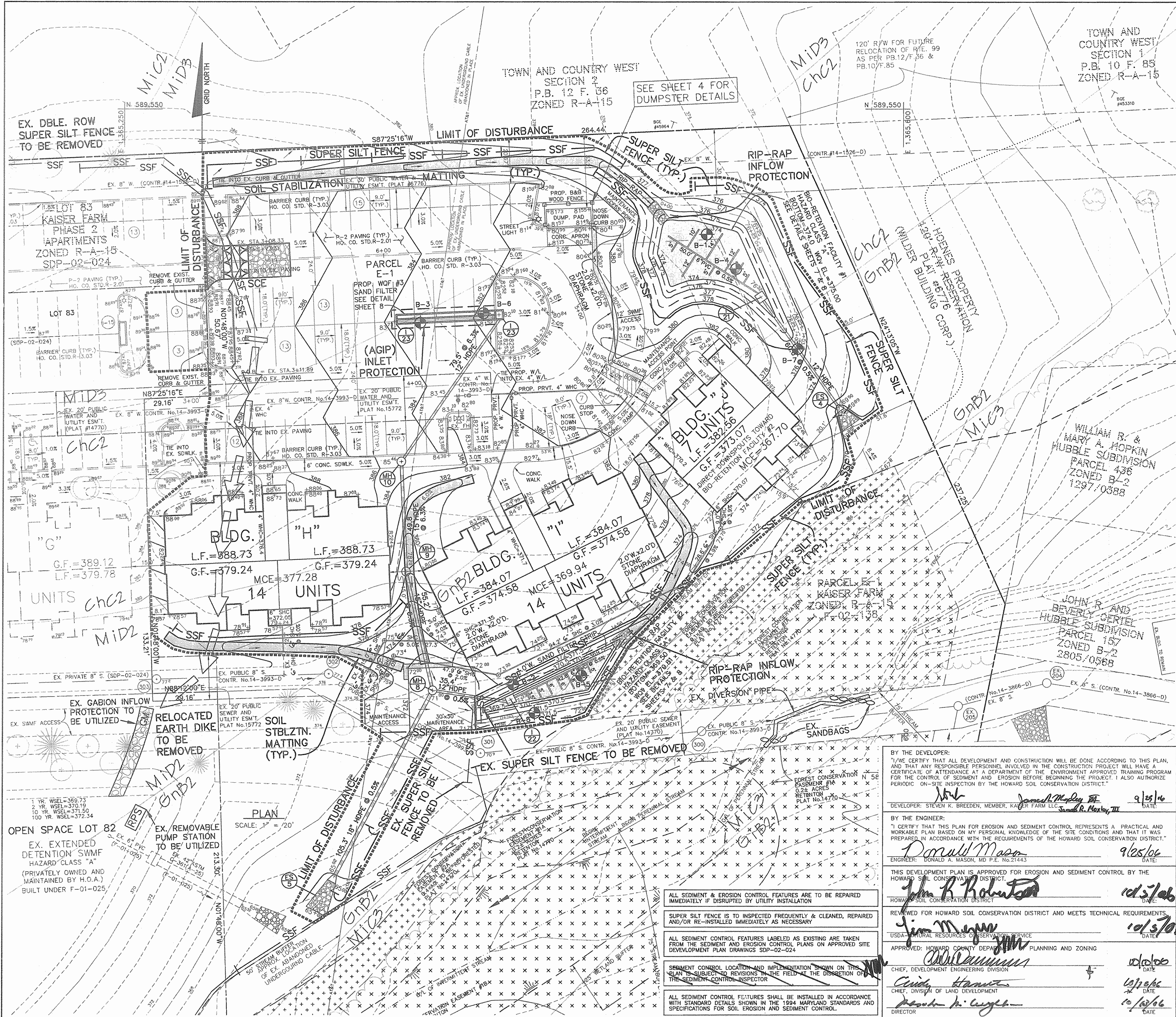
LOCATION: TAX MAP 17 - BLOCK 24 PARCEL 723 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: STORM DRAINAGE AREA PLAN AND SOILS MAP

DATE: APRIL, 2002  
SEPTEMBER 27, 2006

PROJECT NO. 1530

SCALE: AS SHOWN DRAWING 6 OF 9



MAP SYMBOL	SOIL TYPE	MAPPING UNIT
MC2	B	CHESTER SILT LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
GB2	B	GLENELG LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
GB2*	C	GLENELG SILT LOAM - 3 TO 8 PERCENT SLOPES - MODERATELY ERODED
MC2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - MODERATELY ERODED
MC3	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MD2	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES - SEVERELY ERODED
MD3	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES - SEVERELY ERODED

LEGEND	
SOILS CLASSIFICATION	AbC1
SOILS DELINEATION	---
EXISTING CONTOURS	---999---
PROPOSED CONTOURS	---999---
LIMIT OF WETLANDS	---
EXISTING WOODS LINE	---
PROPOSED WOODS LINE	---
EXISTING STRUCTURE	---
PROPOSED STRUCTURE	---
DRAINAGE AREA	---
DRAINAGE DIVIDE	---
Tc STUDY PATH	---
LIMIT OF DISTURBANCE	---
STABILIZED CONSTRUCTION ENTRANCE	---
SILT FENCE	---
SUPER SILT FENCE	---
SOIL STABILIZATION MATTING	---
EARTH DIKE	---
INLET PROTECTION	---

BY THE DEVELOPER:  
I, JAMES K. BREEDEN, MEMBER, KAISER FARM LLC, DATE 9/25/06

BY THE ENGINEER:  
DONALD A. MASON, MD P.E. No. 21443, DATE 9/25/06

HOWARD SOIL CONSERVATION DISTRICT  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE 10/15/06

USDA NATURAL RESOURCES CONSERVATION SERVICE  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE 10/15/06

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

SUPER SILT FENCE IS TO BE INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

ALL SEDIMENT CONTROL FEATURES LABELED AS EXISTING ARE TAKEN FROM THE SEDIMENT AND EROSION CONTROL PLANS ON APPROVED SITE DEVELOPMENT PLAN DRAWINGS SDP-02-024

SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THIS PLAN IS SUBJECT TO REVISIONS IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR

ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

NO.	DATE	REVISION
1	12-8-06	REVISE DMC & SHC TO 6"

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS

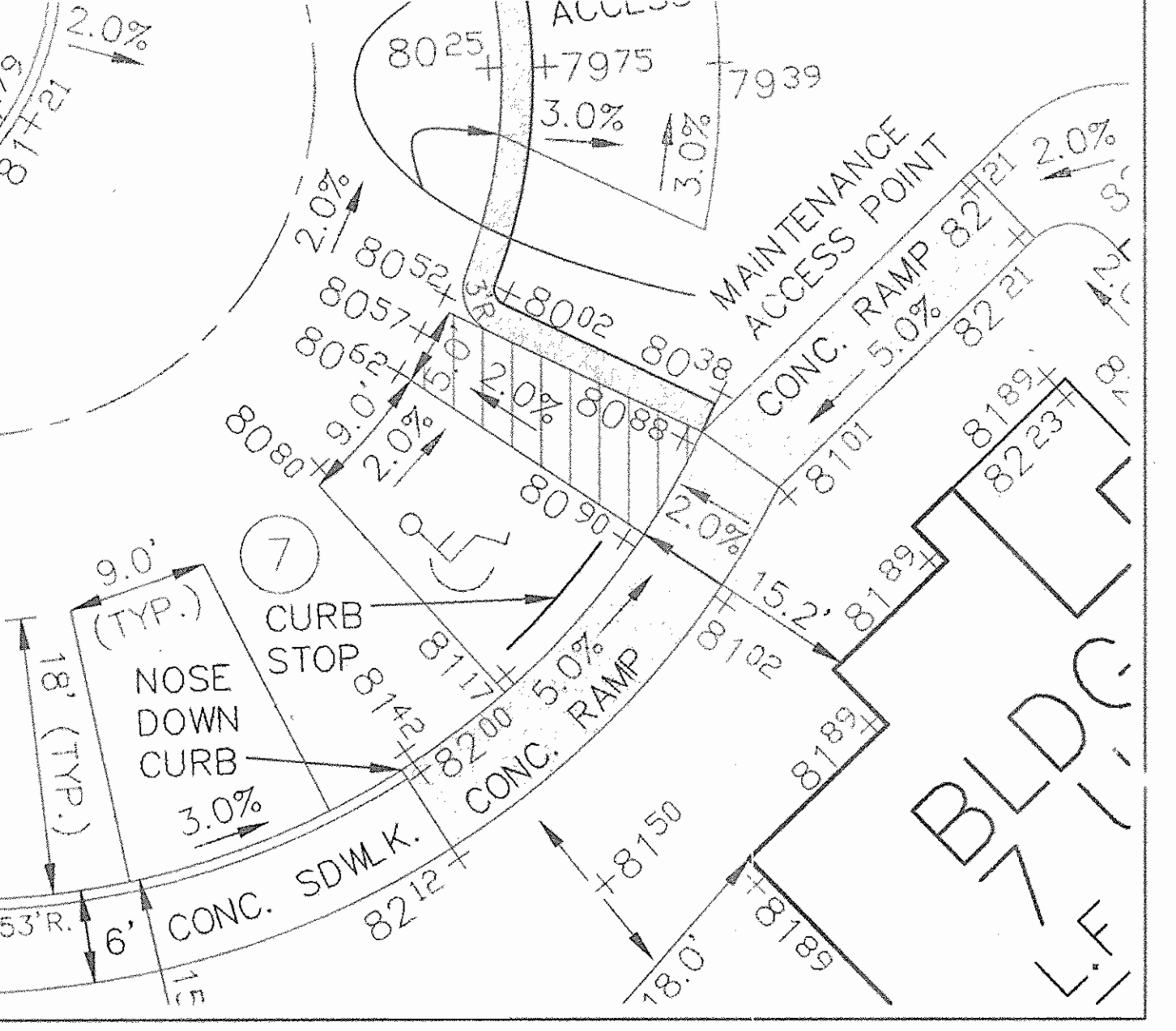
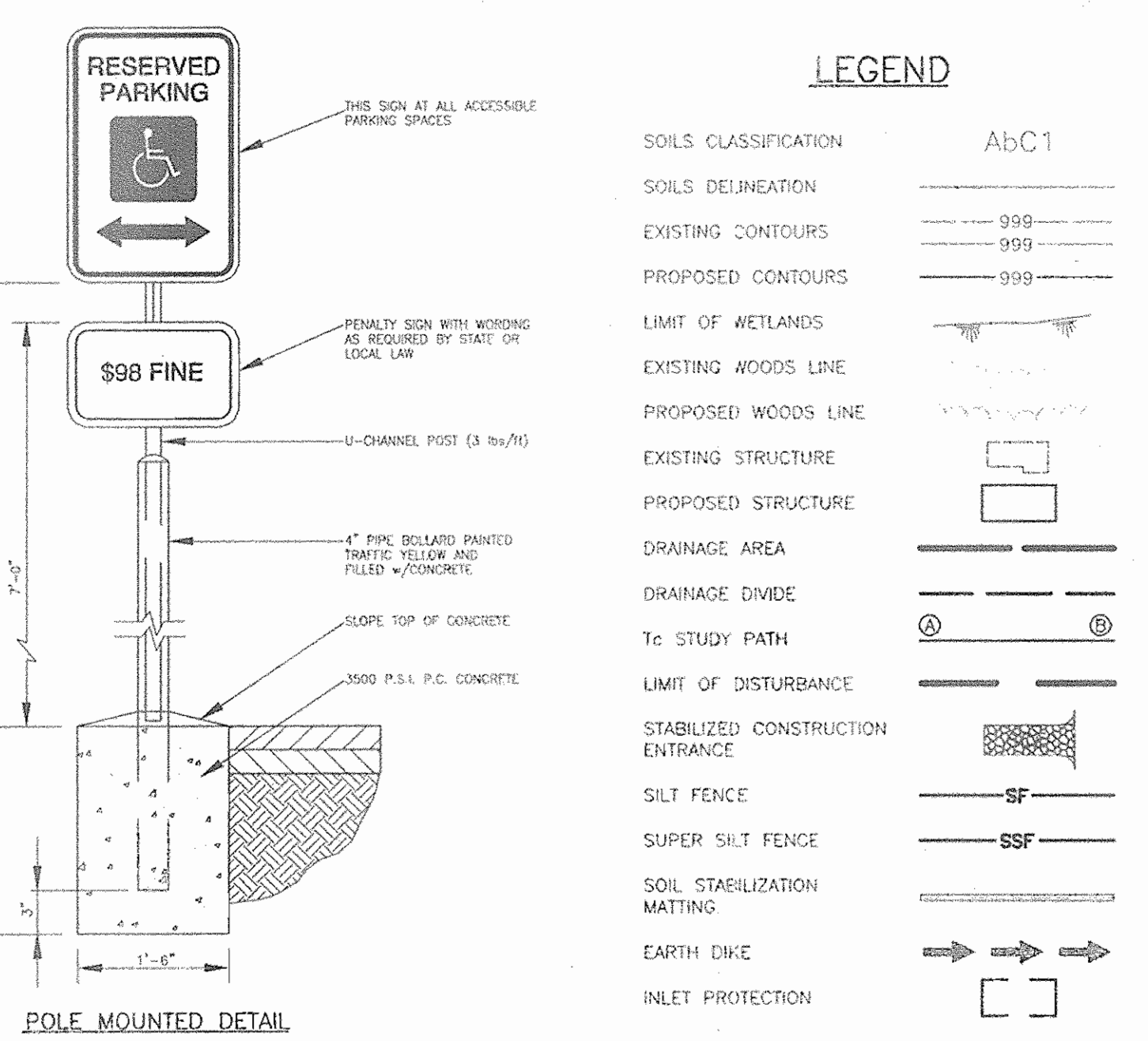
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE # SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: bel@bel-civilengineering.com

DEVELOPER:	PROJECT:
KAISER FARM, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 PHONE: 410-465-4244	KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1
BUILDER:	LOCATION:
RYLAND HOMES 7250 PARKWAY DRIVE SUITE 520 HANOVER, MD 21076 PHONE: 410-712-7012	TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	DATE:
SEDIMENT AND EROSION CONTROL PLAN	APRIL, 2002 SEPTEMBER 27, 2008
DATE:	PROJECT NO.:
AS SHOWN	1530
SCALE:	DRAWING:
AS SHOWN	3 OF 9



CENTERLINE CURVE DATA						
CURVE	STATION	RADIUS	ARC	DE.TA	TANGENT	CHORD
C1	PC=4+52.10 PT=4+97.22	23.00'	45.12'	112°33'35"	34.35'	N311°52'26"E 38.22'
C2	PC=5+09.68 PT=5+41.54	27.00'	31.86'	67°35'25"	18.08'	N58°46'32"W 30.04'



NO.	DATE	REVISION
1	12-8-06	REVISE DHC & SHC TO '6"

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8450 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
E-MAIL: bel@bel-civilengineering.com

**DEVELOPER:** KAISER FARM, L.L.C.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
PHONE: 410-465-4244

**BUILDER:** RYLAND HOMES  
7250 PARKWAY DRIVE  
SUITE 520  
HANOVER, MD 21076  
PHONE: 410-712-7012

**PROJECT:** KAISER FARM APARTMENTS SECTION 3 / PARCEL E-1

**LOCATION:** TAX MAP 17 - BLOCK 24 PARCEL 733 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:** SITE DEVELOPMENT PLAN NOTES & DETAILS

**DATE:** APRIL 2002 PROJECT NO. 1530  
SEPTEMBER 27, 2006

**SCALE:** AS SHOWN DRAWING 2 OF 9

**Design: DAM/MCR Draft: MCR Check: DAM**

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Donald M. Mason*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 10/10/06

*Andy Haman*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 10/10/06

*Mark D. Lygel*  
DIRECTOR  
DATE: 10/10/06